This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

A 413583

PRESENTED BY
THE SOCIETY

610.5
M

610.5
M

TRANSACTIONS

OF THE

Medical Society

OF THE

State of California

SESSION OF 1887

SAN FRANCISCO
W. B. BANCROFT & CO, Printers
49 FIRST STREET
1887

UNIV. OF MICH.

TRANSACTIONS

OF THE

Medical Society

OF THE

State of California

SESSION OF 1887

SAN FRANCISCO
W. B. BANCROFT & CO., Printers
49 FIRST STREET
1887

REPORT

OF THE

COMMITTEE ON PUBLICATION

Mr. President and Members of the Medical Society of the State of California:

Your Committee on Publication herewith presents the printed Transactions of the Seventeenth Annual Session of this Society, in form similar to those published in previous years. It is hoped that the work will meet with the approval of the members of the Society.

HENRY GIBBONS, JR., Chairman.
WALLACE A. BRIGGS,
C. G. KENYON,
G. F. G. MORGAN,
A. P. WHITTELL,
Committee on Publication.

San Francisco, August, 1887.

CONTENTS

Minutes of Seventeenth Annual Meeting..... 5
Annual Address. By W. S. Thorne, M. D., President..... 21
Progress in Medicine. By Wm. Watt Kerr, M. D., Chairman..... 42
Croup. By P. M. Lusson, M. D..... 54
The Disasters of Surgery. By T. W. Huntington, M. D., Chairman.. 61
Topography and Meteorology of California, in their Therapeutical Relations to Disease. By J. B. Trembley, M. D., Chairman..... 75
Supplemental Report on the same. By J. B. Trembley, M. D..... 79
Indigenous Botany. Supplemental Report by G. J. Bucknall, M. D... 84
State Medicine and Public Hygiene. Report by G. G. Tyrrell, M. D., Chairman..... 92
Preventive Medicine. By M. M. Chipman, M. D..... 103
The Sanitary Uses of Salt Water. By Jas. F. Sullivan, M. D..... 127
Public Hygiene and State Medicine. Supplemental Report by H. J. Crumpton, M. D..... 133
Microscopy and Histology. Report by A. Abrams, M. D., Chairman 137
Mental Diseases. Report by F. W. Hatch, M. D., Chairman..... 160
Medical Education. Report by W. S. [illegible]

D., Treasurer..... 365
Graduating Exercises, Report of Committee on. A. B. Stuart, M. D., Chairman..... 367
Medico-Legal Board, Report of Committee on Formation of. By A. B. Stuart, M. D., Chairman..... 375
Alleged Malpractice, Report on a Case of. By A. B. Stuart, M. D... 378
Medical Legislation, Report on. By Ira E. Oatman, M. D..... 386
Report of Committee on Diseases of Women and Children. By O. O. Burgess, M. D., Chairman..... 390
Report on Necrology. By Benj. R. Swan, M. D., Chairman..... 392
Report of Treasurer. G. C. Simmons, M. D., Treasurer..... 397
Constitution and By-Laws of the Society..... 399
Order of Business..... 412
Resolutions Relating to the Government of the Society..... 413
Officers and Standing Committees for 1888..... 419
Active Members..... 424
Honorary Members..... 434

MINUTES

OF THE

SEVENTEENTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA

The society met in seventeenth annual session at B'nai B'rith Hall, San Francisco, and was called to order by the president, W. S. Thorne, at 10:30 A. M., April 20, 1887.

R. H. Plummer, chairman of committee of arrangements, delivered the address of welcome.

On motion of Geo. H. Powers, A. L. Gihon, medical director of U. S. Naval Hospital at Mare Island, was elected to honorary membership.

Roll call was omitted on motion of Washington Ayer.

The president delivered the annual address, which was ordered published in its entirety.

The following resolution was offered by W. P. Gibbons, and adopted:

Resolved, That a committee of three be appointed to consider and to report, at a future session of this society, the most proper means of giving general publicity to those portions of the annual address which refer to public-school hygiene and alcoholism.

As this committee, the president appointed W. E. Taylor, Luke Robinson and F. W. Todd.

On motion, Art. III, Sec. 7, of the Constitution, was amended by inserting after "the board of censors shall examine the credentials of all candidates for admission to the society," the words "after all applications have been read by the secretary, in the body of the house, and posted on the bulletin board in the ante-room."

Pursuant to motion of W. P. Gibbons, the president appointed the following committee to consider the feasibility of securing funds for the establishment of a permanent home for the society: W. P. Gibbons, W. W. Kerr, W. S. Whitwell, G. G. Tyrrell, Washington Ayer.

Minutes read and approved.

Adjourned.

Afternoon Session, April 20.

On motion, C. M. Blake was passed from active to honorary membership.

The dues of A. B. Stout were remitted, and he was then passed from active to honorary membership.

The report of committee on publication was submitted, and, on motion of H. S. Orme, made a special order for 10 A. M., April 21.

On motion, the president appointed a committee, consisting of C. G. Kenyon, H. N. Rucker and G. G. Tyrrell, to consider the question of society contribution to the support of the Ninth International Medical Congress.

F. W. Hatch, chairman, read report of committee on mental diseases and medical jurisprudence.

Referred to committee on publication.

Report of board of examiners was read by its secretary, R. H. Plummer, and referred to committee on publication.

Report of treasurer of board of examiners was submitted and referred to an auditing committee consisting of G. W. Davis, Thos. W. Huntington and G. C. Simmons.

Report of treasurer of the society was referred to an auditing committee consisting of G. G. Tyrrell, E. S. Meade and Henry Gibbons, Jr.

W. Watt Kerr, chairman, read the report of the committee on practical medicine and medical literature.

Referred to committee on publication.

G. G. Tyrrell, chairman of auditing committee, reported the accounts of the treasurer correct.

Report received and adopted.

On motion of Geo. W. Graves, the medical journals of the State were requested to urge on the profession the desirability of contributions to the Rush Monument Fund, and to publish names of local committees in charge.

On motion of A. B. Stuart, it was

Resolved, That the Medical Society of the State of California, in convention assembled, endorses the project of establishing a monument to Dr. Rush, and recommends that members attending the next annual session be prepared at that time to pay their contributions.

Minutes read and approved.

Adjourned.

Evening Session, April 20.

Report of committee on graduating exercises read by its chairman, A. B. Stuart.

On motion of Geo. W. Graves, the report was referred to committee on publication, with the request that it be published in its entirety.

Thos. W. Huntington, chairman, read report of committee on surgery.

Referred to committee on publication.

W. F. McNutt, chairman, read report of special committee on leprosy, and A.W. Saxe submitted supplemental report.

Both were referred to committee on publication.

Supplemental report on Ophthalmology was read by A. Barkan and referred to committee on publication.

Minutes read and approved.

Adjourned.

Morning Session, April 21.

On motion of J. H. Parkinson, the report of committee on publication was received, and its consideration indefinitely postponed.

R. H. Plummer moved that the transactions be published in volume form, as heretofore, and that the committee on publication be formally instructed to that effect. Carried.

Report of committee on medical topography, meteorology, endemics and epidemics read by its chairman, J. B. Trembly, and referred to committee on publication.

W. F. McAllister submitted, by title, a paper on Quarantine and Disinfectants.

Referred to committee on publication.

The board of censors submitted the following report:

"We again present the name of Edward Donnelly to the society without recommendation."

WM. WATT KERR, Chairman
T. BYRON DE WITT
A. G. ANTHONY
H. S. ORME
G. G. TYRRELL

On motion of W. P. Gibbons, the application of Edward Donnelly was referred back to the board of censors, with instructions to bring in a definite report.

The auditing committee brought in the following report, which, on motion, was adopted:

To the Medical Society of the State of California:

Your auditing committee beg leave to report that they have carefully examined the report of the treasurer of the board of examiners and find it correct.

GEO. W. DAVIS
G. C. SIMMONS
T. W. HUNTINGTON

Minutes read and approved.

Adjourned.

Afternoon Session, April 21.

At the request of W. P. Gibbons, W. S. Thorne and Ira E. Oatman were added to committee on recommendations of presidential address.

A paper, entitled Theory and Practice, by C. Dransfeld, was read by title and referred to committee on publication.

On motion of G. G. Tyrrell, the resolution relating to publication of transactions was reconsidered and made the special order for 4 P. M.

Report of committee on medical education read by its chairman, W. S. Whitwell, and referred to committee on publication.

A paper on Croup, by P. M. Lusson, was read by title and referred to committee on publication.

A paper on Electricity in Gynecology was read by J. H. Wythe and referred to committee on publication.

The following gentlemen were duly elected officers of the society for the ensuing year:

President—R. H. Plummer;

Vice-Presidents—A. H. Agard, David Powell, H. N. Rucker, L. M. F. Wanzer;

Treasurer—G. C. Simmons;

Assistant Secretaries—J. H. Parkinson, Geo. W. Davis;

Board of Censors—Jules Simon, Winslow Anderson, J. D. Arnold, I. E. Oatman, C. G. Kenyon;

Board of Examiners—C. E. Blake, Wm. M. Lawlor, C. E. Farnum, C. H. Steele, T. J. Le Tourneux, A. H. Pratt, Jules Simon;

Alternates—C. C. Wadsworth, H. H. Hart, A. P. Whittell.

On motion, San Francisco was designated as the place of the next annual meeting.

By unanimous consent, G. G. Tyrrell withdrew his motion to reconsider resolution concerning publication of transactions.

The board of censors submitted a majority report recommending the reference of the application of Edward Donnelly to a special committee, and also a minority report recommending its rejection.

On motion, both reports were received and the majority report adopted.

As special committee on application of Edward Donnelly, the president appointed J. R. Laine, H. J. Crumpton, A. W. Saxe, T. H. Pinkerton and J. T. McLean.

C. G. Kenyon, chairman, in behalf of committee on contribution in support of Ninth International Medical Congress, reported in favor of appropriating one hundred dollars for this purpose.

Report received and adopted.

Paper of Luke Robinson, of committee on gynecology, was received and referred to committee on publication.

Minutes read and approved.

Adjourned.

Evening Session, April 21.

Ira E. Oatman read supplemental report on medical legislation. Referred to committee on publication.

The following resolution, introduced by R. H. Plummer, was adopted by the society:

Resolved, That, in the opinion of this society, the interests both of the public and of the medical profession will be better subserved by one State Board of Examiners than by two or more, and by examination of applicants than by examination of diplomas, and

That proper provision for the expenses of such board should be made.

Report of committee on histology and microscopy was read by its chairman, Albert Abrams, and referred to committee on publication.

Report of committee on public hygiene and state medicine read by its chairman, G. G. Tyrrell, and referred to committee on publication.

The following resolution was offered by A. W. Saxe and adopted by the society:

Resolved, That vaccination should be made compulsory, and that the State Legislature should be urged to enact such laws as shall result in the protection of the entire population from small-pox, that fearful scourge which destroys 30 per cent. of all unprotected persons attacked.

On motion, the secretary was instructed to notify members who have not completed their affiliation with their local society to do so at once, under penalty of being dropped from the society roll.

Minutes read and approved.

Adjourned.

Morning Session, April 22.

Vice-President R. H. Plummer in the chair.

Report of committee on formation of medico-legal board read by its chairman, A. B. Stuart, and referred to committee on publication.

Report of committee on gynecology read by its chairman, H. N. Parker, and referred to committee on publication.

Supplemental report on public hygiene and state medicine, by H. J. Crumpton, read by title and referred to committee on publication.

Report of committee on necrology submitted by its chairman, B. R. Swan, and referred to committee on publication.

Report of O. O. Burgess, chairman of committee on diseases of women and of children, read by title and referred to committee on publication.

Supplemental report on ophthalmology, otology and laryngology read by J. D. Arnold, and referred to committee on publication.

The following report was submitted by the building committee and adopted:

Resolved, That the president elect of this society shall appoint a committee of 13 members, which shall constitute a committee to be known as the Building Committee of the Medical Society of the State of California.

Resolved, That said committee, as soon thereafter as may be practicable, shall become incorporated under the above name.

Resolved, That said committee, after being incorporated, shall proceed to issue stock not to exceed the amount of $40,000, in shares of $50 each, said shares to bear an interest of six per cent. per annum.

Resolved, That with the proceeds of the sale of said stock, said building committee shall proceed to purchase a lot, and to employ a competent architect to prepare plans and specifications for a building, suitable for all purposes of the medical profession, and to invite bids for the construction of said building.

Resolved, That said incorporators are hereby endowed with full power to act in their discretion in the building and furnishing of said building.

In this connection, it is understood that the society reserves the right to buy up the stock so issued, and that the building to be so erected shall, at all times, be available

to the uses of the medical profession and of medical societies without any cost.

W. P. GIBBONS
W. S. THORNE
IRA E. OATMAN
G. G. TYRRELL
W. S. WHITWELL
W. W. KERR

On motion of C. P. Chesley, the following report of the special committee on the application of Edward Donnelly was received:

Your committee appointed to act on the application of Dr. E. Donnelly reports as follows:

FIRST—That no charges are recorded on the minute books of the San Francisco County Medical Society against Dr. Donnelly.

SECOND—That charges for unprofessional conduct and discourtesy to professional brethren were preferred about three years ago against him and were so far substantiated that the penalty of a public reprimand was inflicted in open session of the local society, in punishment of the offenses named.

THIRD—That we are informed, by the secretary of the local society, that that body has never made a declaration of principles for the guidance of members; has never adopted rules and regulations, or subscribed to any code of medical ethics whatever, and claims that it has no authority to expel obnoxious members holding in fear a civil suit for damages; and that owing to the absence of a code and the timidity of its members, Dr. Donnelly is at this time a member in good standing of that society.

FOURTH—That, having reviewed the evidence as far as consistent with the limited time awarded the committee, we are convinced that there was just cause for complaint against Dr. Donnelly and that the local society exercised

its just authority in summoning him for public reprimand and that the cause against him was cured by the infliction of the sentence; consequently we cannot try and punish him again for the same offense.

FIFTH—That the local society has never adopted rules and regulations, or a code of ethics, does not deprive it of authority to discipline its members: as it stands by implication at least, if not in express terms, that all bodies of medical gentlemen observe and are subject to the code of ethics of the American Medical Association, and upon this view the failure of a local society to subject its members to a wholesome discipline creates no ground for appeal to the state society.

SIXTH—That the admission of Dr. Donnelly to membership in this society involves his investment with the obligations of the code and will make him amenable in the future to the usual penalties for non-compliance with its requirements.

Therefore, your committee finding as above would respectfully recommend that Dr. Donnelly be elected a member of this society.

Respectfully submitted by your committee:

J. R. LAINE, Chairman
A. W. SAXE
T. H. PINKERTON
JNO. T. MCLEAN
H. J. CRUMPTON

Henry Gibbons, Jr., corroborated by several other members of the local society, stated that the committee was in error in reporting that the San Francisco County Medical Society had no code of ethics, for, as early as 1868, it had adopted that of the American Medical Association.

On motion, the application of Edward D[illegible] rejected by a vote of 35 to 23.

On motion of J. G. Jewell, new certificates were ordered issued to old members free of charge.

A. B. Stuart presented the following amendment to the constitution:

Article V., Section 16.—Said section is hereby created, constituting and defining the duties of a "medico-legal board," an elective board, inasmuch as it shall be composed of the members of the "board of examiners" and alternates, unless said board of examiners ceases to exist, and then said medico-legal board, composed of ten members, becomes directly elective. The duties of the medico-legal board shall be to investigate unprofessional and criminal practices by members of the Medical Society of the State of California, and to supplement the duties and authority of the board of examiners (created in accordance with the law regulating the practice of medicine in the State of California), resorting to the courts of justice for suitable punishment in such cases as may be considered advisable. Another object shall be the prevention of blackmail, and, with the assistance and co-operation of the committee on medical legislation, to endeavor to procure such legislation as may be necessary to secure the ends above enumerated. The medico-legal board shall have full power to incur all expenditures necessary to carry out the objects of its creation, as above mentioned. Also, it shall have advisory relations with the committee on mental diseases and medical jurisprudence, on all that relates to medico-legal subjects.

The president and secretary of the board of examiners shall be ex-officio president and secretary of the medico-legal board. The president or chairman will vote only when necessary to give a casting vote, but in all other duties will be governed by the rules and regulations of the board of examiners. The alternate members have equal rights, privileges and duties with the other members, but should be chosen so as to represent the state at

large, so far as the duties of the board of examiners will permit.

A written annual report will be required only to report official acts, or at the discretion of the chairman.

Submitted April, 1887, to be acted upon April, 1888, by Dr. A. B. Stuart, Santa Rosa.

Minutes read, corrected and approved.

Adjourned.

Afternoon Session, April 22.

Vice-president Plummer in the chair.

M. M. Chipman submitted an epitome of his supplemental report on public hygiene and state medicine, which was referred to committee on publication.

Report of committee on ophthalmology, otology and laryngology read by its chairman, A. P. Whittell, and referred to committee on publication.

Report of committee on prize essays read by its chairman, Washington Ayer, and its recommendations adopted. Referred to committee on publication.

Ira E. Oatman read a paper, which was referred to the committee on publication, entitled The Sympathetic and Psychological Effects of Diseases and Displacements of the Uterus, and exhibited a new ante-version and anteflexion pessary.

Report of committee on indigenous botany and domestic adulteration of drugs was read by its chairman, W. P. Gibbons, and, with a vote of thanks, referred to committee on publication.

Supplemental report by G. J. Bucknall read by title and likewise referred.

Paper by Jas. F. Sullivan, on the Sanitary Uses of Salt Water, was read by title and referred to committee on publication.

J. A. Miller read a paper on A New Instrument for Reposition of the Retroflexed Uterus.. Referred to committee on publication.

Paper by Z. T. Magill, entitled Puerperal Eclampsia, a Neurosis, was read by title and referred to committee on publication.

N. J. Martinache read a paper on The Galvano-Cautery in Ulcers of the Cornea. Referred to committee on publication.

E. N. Foote read a paper on Spina Bifida, which was referred to committee on publication.

Paper on Chronic Pleuritic Effusion, by W. J. G. Dawson; one on Man As He Is, by J. T. Welch; one on Relations of Modern Civilization to Insanity, by H. F. Adams; and Report of Committee on Obstetrics, by R. Beverly Cole, were read by title and referred to committee on publication.

The following preamble and resolution were introduced by A. B. Stuart and adopted:

PREAMBLE AND RESOLUTION ON CRIMINAL ABORTION.

Whereas, Criminal abortions are of frequent occurrence, and the laws of California, attaching penalties to such practices, are so deficient that in a great majority of the cases, even where positively known, it is impossible to punish the abortionist; therefore be it

Resolved, That it is the sense of the Medical Society of the State of California, in convention assembled, that the committee on medical legislation investigate the subject of said criminal abortions, show the defects of the present law, and present a draft of a more comprehensive and specific bill for the consideration and action of this society at the next annual meeting, preparatory to presenting it for legislation.

On motion of C. P. Chesley, the president and secretary were instructed to issue credentials to members of this

society wishing to attend either the American Medical Association or the International Medical Congress.

The resignation of Naomi E. Hoy as a member of the society was received and accepted.

Minutes read and approved.

Adjourned.

Evening Session, April 22.

Vice-president McNutt in the chair.

Paper on Progress in Etiology and Pathology of Disease, with its Relation to Improved Treatment, was read by E. V. Lonigo, and referred to committee on publication.

Dues of secretary and assistant secretaries remitted.

A vote of thanks was tendered the retiring officers, and a special vote of thanks to the retiring assistant secretary, L. M. F. Wanzer, for the conscientiousness with which for three years she had performed the duties of that office.

On motion, a committee, consisting of Washington Ayer, H. S. Orme and W. P. Gibbons, was appointed to induct the president-elect into the chair.

After a brief address by R. H. Plummer, the incoming president, the minutes were read and approved and the society adjourned.

At the various sessions of the society, the following gentlemen were favorably reported by the board of censors and duly elected to active membership:

Robert Press. Smith, Julius Rosenstirn, A. B. von Wefelsburg, G. B. Nichols, J. M. Hall, Robt. Armstrong, Geo. W. Seifert, J. D. Young, J. J. Tully, Ella J. Fifield, Jas. L. Mayon, C. W. Nutting, J. H. Wythe (transferred from honorary membership), J. K. Ainsworth, S. O. L. Potter, J. D. Sponogle, B. A. Rabe, D. McSwegan, W. E.

Lindley, L. S. Burchard, H. W. Dodge, G B. Richmond, A. L. Sobey, H. E. Mueller, J. H. Stallard, F. J. White, S. S. Kahn, D. D. Crowley, Edna R. Field, J. H. Soper, H. Ferrer, C. M. Richter, A. E. Baldwin.

The following members were reported present by the committee of arrangements:

San Francisco: M. M. Chipman, H. H. Hart, Geo. W. Davis, Wm. M. Lawlor, S. P. Rugg, Jno. Montgomery, R. H. Plummer, T. J. Le Tourneux, F. Delmont, John Wagner, W. S. Whitwell, J. D. Arnold, O. V. Thayer, J. D. Hartley, Luke Robinson, A. Chase, L. M. F. Wanzer, C. P. Chesley, Washington Ayer, J. O. Hirschfelder, R. Beverly Cole, W. E. Taylor, A. E. Beasom, C. E. Farnum, John F. Morse, C. C. Wadsworth, G. J. Bucknall, Henry Gibbons, Jr., E. V. Lonigo, L. C. Lane, Geo. H. Powers, James Simpson, L. Van Orden, M. A. Cachot, Chas. E. Blake, Charlotte B. Brown, Chas. H. Steele, Jules Simon, T. B. De Witt, W. P. Sweetland, Winslow Anderson, Geo. Gerlach, Lee O. Rodgers, A. P. Whittell, A. S. Lovelace, Mary W. Moody, C. M. Blake, Elizabeth R. C. Sargent, G. F. G. Morgan, Jerome A. Anderson, J. A. Miller, J. P. Le Fevre, M. A. McLaughlin, C. G. Kenyon, B. R. Swan, J. C. S. Akerly, Albert Abrams, W. E. Bates, N. J. Martinache, Isabel Lowry, Agnes Lowry, J. M. Williamson, J. G. Jewell, H. M. Fiske, S. D. Howard, Katherine I. Howard, A. A. Belinge, L. B. S. Pawlicki, J. H. Renebome, G. J. Fitzgibbon, Wm. C. Eidenmueller, Clinton Cushing, E. B. Harris, E. R. Taylor, M. Regensburger, Jas. Frost.

Sacramento: J. R. Laine, Ira E. Oatman, G. G. Tyrrell, Jas. H. Parkinson, W. E. Briggs, G. C. Simmons, T. W. Huntington, Wallace A. Briggs.

San Jose: W. S. Thorne, E. S. Meade, W. H. Hammond, W. F. Pratt.

Oakland: A. G. Anthony, A. H. Agard, A. H. Pratt,

E. J. Overend, T. H. Pinkerton, W. B. Simonton, J. H. Wythe.

Alameda: W. P. Gibbons, Kate Post Van Orden, Thos. Slater, J. T. McLean.

Los Angeles: H. S. Orme, W. E. Lindley.

Stockton: F. Walton Todd, Robt. K. Reid.

Petaluma: L. H. Patty, G. W. Graves, W. E. Fifield, Ella J. Fifield.

Santa Rosa: A. B. Stuart, C. A. Davis, B. S. Young.

Berkeley: W. A. Grover, M. E. Bucknell, F. H. Payne, J. S. Eastman, John Le Conte.

Marysville, David Powell; Auburn, T. M. Todd; San Luis Obispo, W. W. Hays; Lockford, E. N. Foote; Angels Camp, J. E. S. Baker; Etna Mills, C. W. Nutting; Merced, H. N. Rucker; Gonzales, C. A. E. Hertel; San Leandro, A. S. Du Bois; Salinas, May C. E. Gydison; Saucelito, H. J. Crumpton; Jackson, E. B. Robertson; Red Bluff, John Fife; Brown's Valley, L. C. Crossman; Plymouth, A. C. Smith; Santa Clara, A. W. Saxe; Benicia, Edward Gray; Cloverdale, R. S. Markell; Centerville, C. H. Allen; Riverside, F. K. Ainsworth; Livermore, W. S. Taylor; Vacaville, J. W. Stitt; Martinez, J. H. Carothers; Napa, F. W. Hatch; Woodland, Mary E. Freeman.

WALLACE A. BRIGGS,

Permanent Secretary.

ADDRESS

DELIVERED AT THE OPENING

OF THE

SEVENTEENTH ANNUAL SESSION

OF THE

Medical Society of the State of California

By W. S. THORNE, M. D., President.

Ladies and Gentlemen: Permit me to congratulate you upon the seventeenth anniversary of this Society, which, though not yet out of its *teens*, is a robust youth of its age, and if we may forecast the future of this stripling by an auspicious adolescence, it will doubtless attain to honorable manhood and a ripe old age. Permit me to thank you for your presence here to-day, and to express the hope that this session of the representative medical council of the State will be characterized by the usual excellence of its contributions and the harmony of its members. The arctic navigator fast in an ice floe, who thought that he was being carried toward the north pole at the rate of ten miles a day, has awakened to the fact that he was really being drifted toward the equator at the rate of twelve miles a day. He had failed to notice the force of the currents and to correct his position by observation of the stars. Like the arctic navigator, we must look up occa-

sionally to verify our position, to see which way we are drifting, or we may find ourselves at the end of a long voyage in the wrong latitude. The busy practical man, who daily goes about his duties, relies upon his experience. He has no time to note the ever varying currents of popular opinion or professional belief. In estimating the value of experience, we have always the personal equation in the problem that can never be definitely determined. The mental, the physical and intellectual character, education, training and opportunity all affect the value of individual experience. Observe the literature of medicine for a decade and note the contrariety of experience respecting the value and effect of remedies most in use,—bromide of potassium, salicylic acid, mercury, and digitalis, to say naught of the thousand and one new remedies that have been introduced. If there is one thing more truthful than another that has come down to us from the Father of Medicine, it is the aphorism that experience is fallacious and judgment difficult. Our ideas appear to crystalize, dissolve and recrystalize about every decade. In the matter of experience, it is curious to note how varied is the amount of evidence that satisfies the individual observer. One is content that a single post hoc makes a propter hoc, another requires more, but none can tell just how many post hocs it always takes to make a propter hoc. And how difficult becomes the estimate of remedies in the light of self limited diseases, and homœopathy! We are solemnly assured that the seventeenth dilution of chamomile representing a drop of the tincture mingled in the contents of one million lakes of alcohol, each two miles in circumference, cures the most frightful diseases that flesh is heir to. Now, a like potentiality of some favorite drug administered *secundum artem* in one hundred cases of rheumatism, resulting, as probably it would, in eighty-five recoveries, would lead to the old inevitable *reductio ad absurdum* of post hoc one h[illegible] propter hoc eighty-five. This

sort of reasoning has very much retarded the growth of a true science of medicine. In the presence of a large class of diseases, we are ever in doubt whether recovery is due to mental influence, drugs or self limitation. And we shall never eliminate error from medical statistics until we know the natural history of disease under similar conditions of environment, with and without medication. Then only can we determine how much increased longevity in civilized countries is due to improved medical practice and how much to sanitary progress. A great deal of confusion, contradictions, and questionable practice is due to the

VICES OF MEDICAL JOURNALISM

In this age every man is a book-maker or an author,—we write, we are opulent in words as Hamlet says, and we sometimes bring a farthing rush-light to redeem an obscure idea from merited oblivion. There are a great number of medical journals, "all are useful we hope, most of them necessary we trust, many excellently well conducted, but which must find something to fill their columns, and so print all the new plans of treatment and new remedies they can get hold of, as the newspapers print all the horrible murders and shocking catastrophies." But the country that has a Fourth of July, a Declaration of Independence, and an American Eagle, the country that gave birth to the telegraph and the telephone and stump oratory, can afford to have more medical journals than all the world besides, but it is questionable whether the immature observations and hasty conclusions that characterize the great mass of this literature will redound to the power and glory of American medicine. A fog of uncondensed experiences hovers over our consciousness like an atmosphere of uncombined gases. The sanguine and imaginative rush into print with their hopes and impressions. We are periodically startled by new theories and new remedies or new virtues

in old remedies; but it turns out that at last a will-o'-the-wisp flitting over a bog has been mistaken for a beacon light upon a hill. But shall we not record facts? Certainly, but first ascertain that you have one. Fact! that omnipotent monosyllable has been the patrimony of cheats, and the currency of dupes from time immemorial. Facts have furnished the basis of the most stupendous delusions of medical history. The miracles of the Temple of Æsculapius, the cures wrought by the metallic tractors of Perkins, the Royal touch, Bishop Berkeley's tar water, homœopathy and mind-cure have all been sanctified by an irresistible array of stubborn *facts*. The focal adjustment of each individual is arranged to a different scale—no two ever look at the same object at exactly the same mental angle, and the faculty of correct observation, and the power of grasping a complex subject, articulating it distinctly and of treating it not only with effect, but luminously in its widest bearings and in its most intricate details, is the rarest and most exalted attainment of the mind.

CLIMATE AND ITS RELATION TO HEALTH.

Natural history teaches us that air, water, soil, geographical position, and the geological formation of the earth's crust, are largely responsible for the physical appearance and the distinctive qualities of both plants and animals. The feasibility of resolving all living matter into a few simple elements common to the insensible world and the manifest dependence of vital phenomena upon the conditions of environment have led philosophic minds in all ages to conclude that cosmical forces are the efficient sources of all life. However doubtful this doctrine may have become in the light of revelation, it will not be denied that climate and soil determine, to a great extent, the condition of health and the duration of human life. Hippocrates declares, in his dissertation on airs, waters and places, that "whosoever wishes to investigate medi-

cine properly should proceed, in the first place, to consider the seasons of the year, and what effects each of them produces, the course and quality of the winds, the source of the waters, the character of the soil, exposure of cities, elevation, the pursuits of the people, their manners and customs;" and he furthermore adds, that "if such observations appear to encroach rather upon meteorology than medicine, it must be admitted that astronomy contributes, not a little but a very great deal, to our success in the preservation of health." In a broader view of cause and effect, the naturalist turns to climate and soil as a probable explanation for the structural modifications of plants and animals. But our data is too meager and our history too limited to determine, with accuracy, the part that each has played in generic differentiation. The study of climate, its relation to health, and its consideration as a causative factor of disease, is yearly eliciting more careful and discriminative attention. Examples of the beneficent influences of climate upon those inveterate maladies that heretofore have baffled the skill of eminent physicians, are daily multiplying, and the potential effect of certain atmospheres in the management of phthisis, bronchitis and asthma, has revolutionized opinion as to their curability. The influence of climate upon certain diseases has naturally led to a more critical inquiry into the essential qualities that give it therapeutic value. It has been taught that uniformity of temperature, low humidity, freedom from deleterious gases, and a relatively high percentage of ozone, were the chief remedial factors of the atmosphere. We have been taught that mountain air was richer in oxygen than air at sea level, which explained the stimulating effect at high altitudes. But the reverse is quite the fact, since of two men, the one breathing air at sea level and the other upon a mountain 5,000 feet high, the former would get 361 grains more oxygen than the latter, and yet the mountaineer would probably be the more robust of the two. Temperature, and we may

add humidity, appear to be conditions that relate rather to comfort than health. We must, therefore, look further for an explanation of the remarkable influence of certain climates upon disease. Pasteur has shown that putrefaction and allied changes are due to the presence of micro-organisms found in soil, air and water. It has also been shown, in the same line of inquiry, that the existence of these minute germs is a matter of prime importance, as it is demonstrated that they are closely related to many of the so-called zymotic diseases. Recent investigations as to the quantity and quality of floating matter in the atmosphere lead us to believe that it is, under certain conditions, an efficient cause of disease. Experiments in this direction show that each cubic foot of air at sea level in the vicinity of large cities contains fungoid spores, pollen, mineral particles, particles of clothing, starch grains, multilocular plants, and the ova of infusoria. In order to show the *putrefactive* influence of these substances, the air so charged was conducted through a certain number of tubes of known capacity containing sterilized bouillon, in which, after due time, bacterial growth was sure to be developed in a certain percentage of them, by which it was estimated that in Paris a cubic foot of air contained, on an average, 560 bacteria during the year. It is found that the number of microbes was minimum during rain, that they increase as the drying of the soil progresses and decrease when the moisture is exhausted. Ozone had no appreciable effect upon the bacteria. At the same time that these observations were being conducted in Paris similar observations were being carried on at different altitudes in the Alps, with the result that at from two to four thousand meters no bacteria were found, while at an altitude of 560 metres there were found 80 per cubic metre of air. These experiments, aside from furnishing us a rational explanation of the comparative salubrity of climates at different altitudes, may be considered as circumstantial evidence of the highest significance, showing, (*a*)

the existence of organic germs in the atmosphere varying from 28,000 per cubic metre of air in large hospitals to zero at Alpine heights; (*b*) the putrefactive influence of this germinal matter when brought in contact with sterilized animal fluids; (*c*) the comparative insanitary condition of localities where this atmospheric contamination is greatest; (*d*) that equable temperature, low relative humidity and ozone do not prevent the existence of bacteria in and about densely populated districts; and (*e*) the probable relation of these living elements, subtile, all-pervading and indestructible, to the rise and dissemination of a large class of diseases. It now remains for the scientist to determine the specific influence of particular germs upon the economy, and under what conditions of environment their special activities are excited.

BACTERIOLOGY.

There is no branch of investigation connected with medicine that compares in importance and promise to the question of the bacterial origin of disease. Few discoveries of equal importance have received such speedy and strong confirmation. We ought not to be too hasty in accepting all which this new doctrine requires, since our views of the pathology of many diseases have been periodically swayed by histological dogmata. But the evidence confirmatory of Koch's discovery is accumulating on every hand. The bacilliary origin of tuberculosis is now admitted to be in perfect harmony with the older views of this disease. The successful lodgment of the bacillus of phthisis in the living body does not produce, as a rule, general tuberculosis but a local circumscribed deposit that shrinks and cicatrizes, or on the other hand is the focus whence general infection proceeds. This is in perfect conformity with the ancient view of the pathology of this disease, as we already knew that in man a local caseous tubercular mass with infiltration of the neighboring lymphatic glands precedes general tuberculosis by a

longer or shorter interval. The discovery that micro-organisms are the cause of putrefaction and fermentation in animal and vegetable solids and fluids, and that germs capable of setting up putrefactive changes in animal matter exist in great abundance in the atmosphere of populated or unsanitary districts, leads to the belief that there is more than a casual relation between the atmospheric condition and the rise and dissemination of diseases. This belief is further strengthened by the fact that surgical operations and traumatic lesions are attended with danger and accident proportionate to the degree of atmospheric contamination, and that the general health of communities is sensibly modified by the presence of putrefactive matter in the air. It has also been shown that parasitic bacteria are capable of existing upon dead animal and vegetable matter in the outer world, and of penetrating the body under favorable conditions and there producing their specific effect. There are certain facts concerning modes of infection that as yet we do not understand, nor why at one time infective diseases appear as epidemics and at another in sporadic form. But although we do not yet understand the exact process by which a pathogenic bacterium produces a disease, yet we can not reject the evidence which by reason and analogy leads us to believe that there is an intimate relation between them. There are many links yet wanting in the chain of evidence that is gradually uniting the isolated facts and circumstances of bacterial history into a homogeneous whole. If the mycotic origin of diseases becomes the new tables of the law, it foreshadows for medical science the grandest possibilities—the control of infectious diseases by the destruction of the organisms that produce them, outside of the body, by means of disinfectants, and by the removal of all accessory conditions necessary to their existence. To this may be added the future probability of inoculation with attenuated viruses and contagia in order to forestall the development of infectious diseases. It is to

be hoped that the future triumphs of medicine lie in the direction thus indicated rather than in potent medication or improved therapeutics, and that the art of healing will be transformed into the art of preventing disease.

PHYSIOLOGICAL ERRORS OF THE SCHOOL SYSTEM.

The microscopical anatomist delves with renewed energy into the mysteries of pathological histology, and we crown with fresh laurels the discoverer of a hitherto unknown bacillus. We recognize as the faces of our familiars the germs of cholera, anthrax and tuberculosis. The chemist invents new remedies for old diseases and vast libraries are plethoric with learned dissertations upon their history and treatment. But how scanty is the literature that tells us of the manifold diseases and infirmities of childhood, resulting from a vicious school system. Few medical writers appear to have given much thought to mental training from a sanitary point of view. The tolerance of health and sound physical growth, to mental stimulus, its just limits and its relation to the age and condition of the student, are matters that appear to have been left to chance or accident. The medical profession cannot be held blameless for those physiological errors already engrafted upon our common and high school system of education—the most flagrant of which is the error of exclusively developing one part of the organization at the expense of the rest. I have seen ruddy faced country lasses and robust rustic youths return home to die, or to drag out an existence of chronic invalidism, after a course of intellectual cramming at a certain high school that prepares teachers for the rising generation. I have witnessed the occurrence of hysteria, convulsions, nervous prostration, arrested menstruation, insomnia, leucæmia and pulmonary consumption among the victims of this unnatural system. Who does not know that the athlete may develop his muscles at the expense of his [illegible], and the student his brain at the expense of his

muscles, stomach and even his reproductive power? Who does not recognize the fact that this inharmonious, one-sided development is an error of our present school system? Who does not know that the world's great workers have been those who have united strength of intellect with strength of sides, as Cicero says. The irresistible power of such a union is conspicuously illustrated by the history of the dominant races. The demand of civilization is "give us the best possible brain." Physiological questions of far reaching importance are involved, that appeal to the physician for solution. By what method can the mind be best developed without impairment of those bodily functions that render the individual a good animal? Ventilation has done more for children than all the calomel and rhubarb of the shops, and air and exercise for brain-building than all the classics of the schools. The great physiologist, Du Bois Reymond, teaches that regular and systematic training of the muscles is an invaluable auxiliary in the development of the mental faculties; that exact and systematic training of the muscles actually increases the gray matter of the brain and spinal cord. Every educational establishment in the land, high or low, should include in its curriculum physical training under competent masters. Standing in physical attainments should be equally honorable with rank in grammar, rhetoric or classics. The perpetuity of the race depends upon good brains and sound muscles. A good brain is at once the measure of the individual power, a conservator of strength and a prolonger of life.

ALCOHOL AND THE MEDICAL PROFESSION.

Is there no responsibility resting upon the medical profession for the increase of alcoholism? Can we truthfully answer, that the public thoroughly understands the opinion of the profession upon this subject—that it is unitedly opposed to the conversion of a potent poison into habitual and daily use as a beverage—that we believe and

teach that spirit drinking is the paramount curse of civilization, compared to which all other evils and afflictions sink into utter insignificance? Have we sufficiently emphasized the fact that this polite abuse is filling our hospitals with infirm paupers, crowding our prisons with the vicious and criminal, and multiplying our asylums for the insane and feeble-minded—that it is responsible for a large class of incurable hereditary affections, and a criminal class that occupy a borderland between sanity and insanity, and that it is an ever increasing cause of moral corruption and physical decay? To none is this vice so frequently revealed, in all its hideousness, as to the medical practitioner. Its breath is the sirocco from the desert of death. Its pestilential and desolating influence is the lesson of the hour. It taxes the temperate and industrious to support those it has made vicious, criminal or insane. It lays its palsied hand upon the productive resources of the country, and he who earns his bread by honest toil must yield a part of it to support the victims of this monster vice. Vast sums are yearly legislated to protect our people from the approach of infectious diseases. But there can be no quarantine against self-poisoning by alcohol. The difference between contagia and intemperance is one of kind rather than of degree. The former destroys the body, whilst the latter is compatible with a loathsome existence and the power of transmitting its evil consequences to the third and fourth generation. It seems to me that an occasional monograph on the physiological effects of alcohol is not enough. The literature of this subject from professional sources that reaches the people is too meagre. This question has been chiefly relegated to itinerant lecturers and sensational frauds. With the public, its name is synonymous with eloquent twaddle, and it is closely related to spiritualism, water-cure and kindred humbuggery in the public mind. The attitude of the medical profession upon this subject is equivocal. Our position is not un-

derstood; our silence has been wrongly interpreted. The medical profession, as the recognized authority in matters of public hygiene, can suggest measures for the restriction of a public vice. And these measures will receive consideration from the civil authorities. The medical press should widely disseminate the fact that alcohol is an unmitigated poison to the human economy, and that its effects, however slow or imperceptible, are, nevertheless, certain and deadly. As men, as citizens, we should unite our efforts to emancipate politics from the unhallowed association with the commerce of this pernicious drug. We should awaken our legislators to an enlightened and corrected opinion on the subject, and induce the authorities to restrict the retail traffic to within the narrowest possible limits. From time immemorial man has possessed resources for artificial stimulation, and we may be sure he will have them to the end. Total abstinence is the dream of the impracticable and transcendental. It can never be realized. The only question involved in this matter is, what stimulant may we employ with the least possible injury? The answer is, light wines not fortified by the addition of alcohol. Experience teaches that in proportion as the use of light wines increase, the desire for spirits diminish. We may make a temperate people by substituting a comparatively harmless stimulant for a degrading and pernicious one. The silent and impassive attitude of the profession respecting this matter is ominous and suggestive. Let us purge ourselves of the imputation that we approve of spirits as a beverage, and let us assist in a reformation so fraught with far-reaching consequences to society. It may be possible that remarks upon this subject at this time are lacking in precedent and of doubtful propriety, but the liberty of speech accords with the genius of our people and with the privileges of this honorable body. With the assurance of your polite indulgence, I know full well that my own sentiments will

in no wise compromise your aggregate wisdom, or influence your final judgment.

SPECIALIZATION IN MEDICINE.

A great specialist has said that the growth of specialization in medicine is at once a benefit and a peril. The ever widening domain of medical art, the extended field of scientific research essential to a complete medical course, the vast array of detail to master preparatory to general practice is naturally suggestive that life is too limited to permit us to compass the art and science of medicine—and that our limited time and ability might be more profitably employed in a more circumscribed area. Admitting the expediency of self dedication to separate departments of practice, we insist that a specialist, in a high sense, should be a man of large views, liberal education and an experienced and capable practitioner. The reasons are many and obvious. A continued routine among details narrows the mind and paralyzes the capabilities for larger conceptions. The correlation or independence of distant parts in the economy of man through its multiplied and varying reflexes is so intimate that an intelligent conception of it requires a careful study of the organism as a whole. Local disturbances or structural disease, through the influence of distant ganglionic centers, illustrate at once the complexity and the importance of the subject. The reflex diseases of the ears from irritation of dental nerves; the pulmonary, stomach and intestinal diseases of infants proceeding from the same source; ear troubles and even deafness from disease of the stomach; hyperasthesia of the retina from an irritable urethra; epilepsy, insanity and a variety of functional and organic diseases of the brain from disturbance of the ovaries. Principles and causes must never be lost sight of in any department of medicine. But the continual tendency of specialization is to narrow its investigation to its own special domain, until, as some commentator

has seriously intimated, the field of the speculum limits pathological inquiry. The taking of the so-called specialties by young men who limit their attention to them at an early period of their medical career, because more facile to acquire or more lucrative to practice, have misconceived a professional duty, restricted their field of usefulness and jeopardized their prospects of professional eminence.

MEDICAL EDUCATION

Is a matter that does not behoove me to discuss at length. But at this time and in this presence I shall offer no excuse for my convictions on this subject. That progressive changes should be made in the mode and character of medical instruction in this country appeals alike to our common judgment, and to the interests of the present and coming generation of medical men. The importance of the medical function is in no wise exaggerated in assuming that it is more essential to the well being of society than the judicial and I had well nigh added the religious. Common experience teaches us that the higher walks of the profession are occupied by men of broad and deep culture, and that a sound preparatory education is the surest guarantee that a medical education will enable its possessor to reach honorable distinction. In England where the subject of medical education receives the most zealous supervision, not only is a thorough preliminary English education deemed indispensable, but it is furthermore held that the classical studies are an essential part of it, since the latter afford a better training of the medical mind than the study of the sciences. However divided this opinion may be, it is held by a large body of eminent teachers and emphasizes the importance of a thorough literary training preliminary to a medical course. While this country is second to no other in the merited eminence of its medical leaders, yet the truthful observer is forced to admit that our educational

requirements are too low, inadequate in thoroughness and faulty in detail. It is delusive to argue that the medical schools are replete with students, that the teachers are eminent, that the graduate is satisfied with the diploma and the community with the graduate. The fault lies at the root of the tree. The foundations of medical education are defective and the superstructure toppling and uncertain. These are facts, disguise them as we may. In the Spanish Americas, where general education is incomparably lower than with us, the American diploma is not recognized, and in England, France and Germany it is not considered a guarantee of respectable attainment. Are gentlemen serious, who tell us that the pass-examinations of their schools are equal to those of London, Paris or Berlin ? If so it is pertinent to enquire wherefore the foreign degrees that conspicuously overawe or totally obliterate those of *alma mater*, the *indigenous* M. D. of Philadelphia, New York or San Francisco ? The gentlemen are excusable; the remark was merely an exaggerated compliment to home production. In older civilizations the medical function is jealously guarded by difficult barriers. Before entering upon a medical course the candidate must pass an examination in physics, mathematics, English and classical literature, and thereafter the special form required of the candidate is a three years' graded course including hospital work and terminated by examination conducted under the auspices of independent boards. The wisdom of these provisions can not be doubted. This elaborate system has been slowly evolved through a period of time, compared to which our national life is infantile. It is not probable or possible that we may speedily overcome the prejudices and conflicting interests that oppose our attainment to this standard. It is manifestly a work of time; but it can, must and will be accomplished. The first essential reform is preliminary education. For the promotion of this desirable step let every reputable practitioner refuse to accept as a student one who

has not passed a high school or college course, and let no student be permitted to matriculate where this requirement is not inflexibly maintained. This done and we shall have taken the first great step toward medical reform. Dr. J. S. Billings has somewhat curiously advanced the idea that there are few localities in the United States where the qualifications of the medical men are not fully up to the standard which the community is able or willing to pay for. This principle carried to its logical conclusions means that in some communities justice, at the hands of a stupid or corrupt judiciary, education by unqualified masters, and religion and morals from ignorant and corrupt priests, suits the market and is as good an article as the community can appreciate or is willing to pay for. The proposition is delusive, its deductions absurd. It is a fact known to all of us, that people in this country, irrespective of geographical lines, are quick and ready to appreciate and reward superior excellence in its representative men. Fields of labor may vary in their extent and remunerative quality, but the difference is one of degree rather than kind. In any event, the advancement of medical education demands broader and more liberal views than those suggested by the commercial axiom of Dr. Billings. The proposed modifications in our present system will not be carried out single handed by medical schools. It is a work in which every reputable member of the profession can actively participate and in a measure control. The metropolitan and country doctor can prevent his students from entering other colleges than those in good standing, and it must be definitely settled that a college in good standing is one that requires a preliminary examination in physics, mathematics and English, and a three years' graded course including hospital work and instruction in hygiene and preventive medicine. Such reforms may not harmonize with local interest, traditional prejudice, or popular opinion, but they will meet the approval and

co-operation of the friends of medical science everywhere.

A MATTER OF FINANCE.

There is a matter affecting, as I believe, the future of the Society, to which I desire to call attention. This Society, so far as I am informed, is the pioneer medical association, and it is essentially representative of the profession of the State. To it we are indebted for the laws regulating the practice of medicine and the advancement of medical education. It has fostered science, encouraged ethics, and given an impulse to medical literature. By its persistent action against illegal practitioners it has purified the profession, and elevated the dignity and the respect of legitimate medicine. There is not a town, village or hamlet within the borders of the State that has not experienced the beneficial influence of this Society. The well-being and perpetuity of this body is a matter fraught with great interests to the profession and to the Society. With concert of action and unity of purpose, we may expect to see the profession push on to new conquests and to higher attainments. But have we secured all reasonable guarantees that we shall be handed down to a succeeding generation? Have we a right to expect that this organization will be permanent unless we place it upon a sound financial basis? A monied investment in a thing marvellously enhances *our* appreciation of it, whilst the act itself increases the respect of our cotemporaries and the admiration of posterity for *us*. Proprietorship in a tree or shrub lends to the plants new beauties and to the flowers a higher fragrance. It may be taken as an axiom, that no organization is safe or perfect without capital. It is not admitted that because this Society is ethical and scientific in character it is not within the purview of the rule. Capital is synonymous with permanency and power. We desire both. This Society was organized with a view to permanent existence.

It must have power, respect and public confidence to carry on its great work. Shall we rest content to live from hand to mouth as a Society, whilst the aggregate capital of our members now reaches a vast amount? Is there a valid reason why this organization could not in a few years own a building and grounds suitable to its purposes? Among our apparent needs are proper apartments and the foundation of a medical library and museum. A scheme by which this might be accomplished would involve a small outlay by the members for a few years. It would not, in the aggregate, amount to one hundred dollars per capita. Examples are not wanting of individual munificence in this Society. Let us imitate, therefore, their princely benevolence, and lay the foundation of the Medical Society of the State of California upon a broad and enduring basis. I would suggest for your consideration the appointment of a committee at this session to study and elaborate a financial scheme for this purpose. Without laying upon the members an onerous burden, it is entirely practicable within five years for this Society to possess, in fee simple, a property that will amply supply our present and future requirements and at the same time afford a profitable revenue upon the investment.

THE LAW REGULATING THE PRACTICE OF MEDICINE.

The profession of California may well be congratulated upon the successful operation of the law regulating the practice of medicine in this State. Energetic and successful prosecutions have been inaugurated the past year under the auspices of our Board of Examiners and the various local Societies. The official register of 1887 furnishes the most satisfactory evidence that our medical law is efficient in the hands of an earnest and capable executive. Unqualified practitioners have entirely disappeared from many of the towns and villages of the State, while the aggregate [illegible] in the year has

been sixty-six per cent. Our profession has not been united in the opinion that the law which created and maintains three separate Boards of Examiners, professing as many distinct creeds, was the very best law that could have been framed in the interest of medical science. It would seem that there ought to be but one recognized standard of minimum attainment for every man who professes to practice the science and art of medicine, the legal weight and measure as applied to medical competency. But this idea it appears is repugnant to the popular notion of American *freedom.* We must have perfect freedom, even at the cost of good order and personal safety. In this country the law that trenches upon the higher privilege of the American citizen, that enables him to get in this world just that sort of an article which he is able and willing to pay for, is a dead letter. For this sacred right our forefathers once emptied a vast quantity of British tea into the Boston harbor, and in defense of which American orators have extracted the juice from all the superlatives in the language from that day to this. Apropos to popular influences, it has been observed that the science of medicine, ostensibly founded upon fact and experience, is as sensitive to influences, moral, political and imaginative, as the barometer to atmospheric pressure. It is clearly demonstrable that the stirring events of history are constantly associated with notable vibrations in medical thought. The eras that brought forth great names in literature, philosophy, arms and religion have mostly been associated with masters in the art of healing. It was in the age of Pericles, Plato, Socrates and Phidias that Hippocrates, revising and correcting all previous knowledge, gave to medicine the new tables of the law, that were the guiding principles of medical practice for two thousand years. Aristotle, who embraced in his own person all knowledge, both medical and philosophic, was cotemporary with the soldier whose conquests embraced the world. Coeval with the brilliant

era of the Ptolemies, and the impulse given to culture by Alexandrian literature, we find the names of Herophilus and Erasistratus, according to Galen and Celsus, the two greatest anatomists known until that time. Vesalius was cotemporary with Martin Luther, the one scalpel in hand laboring for the promotion of science, the other with pen and tongue struggling to emancipate humanity from the tyranny of a corrupt age, and both in the face of the fagot and inquisition. Whilst Napoleon was remodeling the map of Europe by invincible armies and planting the imperial eagles in its ancient capitals, Bichat was revolutionizing the science of life and shedding the light of his penetrating mind over the different departments of medical science. In our own country the great events, that impelled the infantile colonies to struggle for a principle against the most potent monarchy of the world, gave to medicine a genius and to his country a patriot, a statesman and a philosopher, the immortal Benjamin Rush. Popular follies and superstitions have likewise their medical and scientific reflexes. Pliny was impressed with the current belief of his time that the blood of the dying gladiators was an efficient remedy for epilepsy, and the learned and philosophic Bacon accepted the popular delusion that the weapon-ointment healed the wound by its application to the instrument that inflicted it. Within the memory of men yet living the efficiency of the royal touch was gravely maintained by many of the most eminent doctors of that time. Such was the force of popular belief upon the professional mind, that it accepted the pretension that a rotten old King with a diadem of the corona veneris encircling his brow could cast out diseases by his polluted touch. History repeats itself, and in our own times we have many examples of which I am speaking. The most notable of these is the stupendous delusion known as homœopathy, which has had its medical reflexes and its phases of usefulness too. Whilst pretending to theories that are

deliriously impossible, and to doctrines having no foundation in fact, and no analogy in science, it has taught us that a *materia medica* consisting of *nomenclature*, is as good if not better than active medication in the treatment of self-limiting diseases. It is not denied that there are changing elements in medicine due to the varying phases of disease, the fashion of remedies and to the decay of theories, but it is likewise apparent that practical medicine in all time has been swayed by the ebb and flow of popular tides. If in the foregoing pages my rambling remarks have appeared to savor rather of criticism, than of pleasing discourse, you will pardon the judgment that sanctions their expression. The freedom of thought and the liberty of speech accorded to every American citizen, will not, I am persuaded, be denied on this floor. To this fundamental law of a free people rather than to conquests by flood and field we are indebted for our progress in science and in the arts of peace. It is the torch which a great artist typifies in our statue of liberty enlightening the world. To oppose this sacred privilege the fagots of the inquisition were prepared for Galileo, and Pope Paul V. forbade the faithful to accept the doctrine of a moving world. But in spite of popes and the fires of the inquisition, in spite of bigotry, superstition and ignorance, the world does move, and we move with it. Inertia is the most malevolent force in nature. We must progress, we cannot stand still; as men of science, as citizens, we are impelled to higher attainment by irresistible forces.

PROGRESS IN MEDICINE.

By WM. WATT KERR, M. A., M. B., C. M., of San Francisco, Chairman.

The past year has not been distinguished by the discovery of any new drug whose therapeutic value like that of chloroform, ether, the bromides, chloral hydrate, or cocaine, is of sufficient importance to constitute a land mark in the history of medicine; but on the other hand much has been done to elucidate the actions of old remedies, to make known the indications for their use, and to devise methods for their more efficient administration. Perhaps the most distinctive feature in medical thought at the present time is the tendency to adopt a local treatment instead of internal medication in the treatment of diseases of the internal organs, and, therefore, what may be regarded as minor surgery is becoming more common among physicians, while under their advice new and graver operations are undertaken, for which the skill of the specialist in this department is required. Indeed, so aggressive has surgery become, that it is frequently impossible to decide to which department the cures belong, and it is absolutely necessary for the physician to understand the risks and responsibilities of each operation, since with him lies the responsibility of recommending it at an early stage or temporizing.

Last year, the treatment of phthisis pulmonalis by intrapulmonary injections was brought before the profession and the subject has been vigorously prosecuted, especially

in America and Great Britain; nevertheless, it is still impossible to make a just estimate of its value. Dr. Blake White, of New York, who is probably the most ardent American advocate of the method, claims that all his cases were materially benefited under this form of treatment; the cough, expectoration, and local soreness around the cavity were controlled, the night sweats were checked, the moist sounds disappeared and the whole condition of his patient improved.

Unfortunately, this has not been the experience of other investigators, who found that, where tubercle was present, the injections either had no effect in the course of the disease or the improvement was very temporary in those cases; on the other hand, where the cavity was due to gangrene, or breaking down of pneumonia consolidation, the results have been most encouraging.

Our own experience with the method has been limited to two cases and they were not such as to warrant any conclusion; but the literature on the subject and the pathology of the disease would not lead us to hope for permanent benefit where the presence of the bacillus in the sputa demonstrated conclusively the existence of tubercle, for we have found that by the time softening had occurred in one part of the lung, the bacilli were present throughout the whole organ. Furthermore, it is extremely probable that the benefit following the intra-pulmonary injection is due to a local action on the walls of the cavity and not to any general effect upon the tissues, after absorption of iodine into the circulation, because in those cases where the injection accidently entered a blood vessel most alarming symptoms followed, showing the danger of introducing even small quantities into the circulation: moreover, the greatest precautions were always taken to ascertain that the point of the needle was in an air space, hence it is a local action that is primarily aimed at; and even admitting that the injections are gradually absorbed, they are made rarely more than once a week,

and contain from three to nine minims of the tincture, a quantity which, when diluted by the blood, cannot have the slightest effect on any bacillus. It is not surprising that material benefit should result from healing of a cavity or disinfection of a caseated mass, for by this means a central focus for infection is destroyed and the improvement in general health that follows the healing of a pulmonary cavity marks the cessation of any purulent discharge from the body.

Dr. White advises a solution of iodine in glycerine and dilute alcohol, combined with atropia, morphia and carbolic acid, which is preferable to the ethereal solution of iodoform used in Europe, since any injection of ether always produces great pain.

The most novel treatment of phthisis pulmonalis is that introduced by Dr. Bergeon and consists in the administration of gaseous enemata. He passes four or five litres of carbonic acid through a bottle containing natural sulphuretted water; the carbonic acid thus becomes impregnated with sulphuretted hydrogen and is injected slowly into the large intestine, where it is absorbed and carried by the veins to the lungs. The object of this mode of treatment is to obtain some medicinal agent that will thoroughly permeate the entire structure of the lungs, and in this manner come in direct contact with all the tubercular deposits. Gases, which are poisonous when inhaled into the arterial system, are perfectly harmless when absorbed from the large intestine into the veins and carried to the lungs through the venous capillaries, hence the method of rectal injections. The great success which has attended this form of treatment is vouched for not only by Dr. Bergeon, but by several of the most prominent physicians in Europe, who have seen it used in cases under their own supervision that had resisted all other remedies—among whom are Cornil, Bennett and other reliable authorities.

It is impossible to explain the action of the sulphuretted hydrogen as even in cases apparently completely cured the bacillus is still found in the sputum.

The various crude and indefinite reports of this so-called "cure" have given rise to considerable discussion as to the active agent in this treatment and the method by which its ends are attained. Dr. Bergeon introduced this treatment with the hope of destroying the bacillus tuberculosis and experimented with several gases which are known to have germicidal powers. He finally selected sulphuretted hydrogen as a powerful microbicide and the carbonic acid as a vehicle and diluent on account of its anæsthetic properties. So true is it that sulphuretted hydrogen is the therapeutic agent, that Dr. Bergeon claims that he was unable to obtain good results with any solution of chemically made hydrogen, and confined himself to the use of the waters of Eaux Bonne, or to the fluid, sulphuret of carbon.

The fact that the bacilli do not entirely disappear, although their number is diminished, has lead Bergeon to doubt their causative relations to the disease; but it is quite possible that the amount of sulphuretted hydrogen introduced, while it is insufficient to destroy the microbe, can prevent its necrotic process, and that this is the cure is indicated by the diminution in their number that is coincident with the improvement in general health.

It is quite a common thing for the surgeon to find micrococci in the dressings and discharge of antiseptic wounds when the lotion has not been sufficiently strong for germicidal purposes; and yet the wound remains perfectly sweet and healthy, while the presence of these same germs in a wound to which no such dressing or lotion has been applied is accompanied by a more or less purulent discharge. The reason of this is simply that the germicide is not sufficiently strong to destroy the micrococci, but will prevent their fermentive action. Indeed there is no greater proof of micrococci being the cause of and not the consequence of suppuration than the facts (1) That when they are absent the wound remains sweet. (2) When they are present in wounds they

produce no bad effects if antiseptic measures be used, while if these precautions be neglected suppuration follows.

Hence the persistence of bacilli in the sputa of phthisical patients, after their condition has been improved, does not negative the germinal origin of the disease. The difficulties attendant upon the method are its disagreeableness to the patient, the rectal injections requiring to be made twice in twenty-four hours and each of them requiring about twenty minutes; also the risk of admitting atmospheric air with the gas, which causes abdominal colic and pains. Manufactured sulphuretted hydrogen is not nearly so efficient as that disengaged from mineral waters.

A more decided departure from medication consists in paracentesis of the thorax in cases of bronchiectasis. Dr. Williams of London, an eminent authority on pulmonary diseases, reports several cases treated in this manner with satisfactory results. The method of procedure consists in locating the dilated bronchi by means of the usual physical signs, then passing a cannula into the suspected area, through which, if the diagnosis be correct, mucus and pus may be withdrawn; the cannula also serves as a guide along which an incision is made into the cavity, and a drainage tube inserted.

The operation certainly appears a very bold one, as the cavities generally are situated at a depth of from three to six inches from the surface, but it is claimed that vulnerability of the lung tissues is very slight, and possibly our fears are more due to the fact that we are treading on unknown soil than to any real danger.

Dr. Williams gives his opinion that the operation should be confined to those cases where (1) antiseptic treatment has failed to correct fetor and allay cough. (2) Where the bronchiectasis is confined to one lung, is situated in the lower lobe, and the pleura is adherent to the thoracic wall so that there may not be any chance of inoculating the pleural cavity with septic material.

It appears to us that this class of cases might be well treated by the intra-pulmonary injections already referred to in our remarks upon phthisis, since the operation is a simple one that may be undertaken by any competent physician, and the passage of a needle is not attended by the risk which accompanies an incision, neither would the formation of pleuritic adhesions be a necessary preliminary to the operation.

Aortic aneurism is a disease that in all stages falls equally under the care of the physician and surgeon. Loretta's operation for aortic aneurism, by introduction of fine wire into the sac, really falls more within the province of surgery and we only mention it here because the cases are generally first under the care of a physician, and a knowledge of the success attendant upon this form of treatment must influence him in advising surgical interference.

The number of cases operated upon are too few to permit any definite conclusions regarding its ultimate value; but this society may congratulate itself on having among its members the surgeon, who, at the present time, has obtained the most successful result on record.

Mr. Barwell of London has made a novel addition to this operation which is likely to contribute to its success. After the wire had been introduced into the sac, through a fine ivory cannula, the end of it was connected with the positive pole of a battery of which the negative pole was applied over the scapula and skin of the patient, and a current passed through the wire for little more than an hour. The patient died shortly afterwards from a second aortic aneurism, which had existed before the operation, and the autopsy showed that the coils of wire were surrounded by a thick, firm, colorless clot which in many places bound the wire to the wall.

The dangers of the operation do not seem to exceed those of many other abdominal sections that are undertaken for the relief of diseases less dangerous to life, and,

therefore, should future experience establish the curative effects of the operation, it is to be hoped that the physician will be as ready to recommend surgical interference to his aneurismal cases as he advises it to those suffering from ovarian tumor. As we have already said, the subject of aneurism is more the property of the surgeon than the physician and we are treating such cases to-day, only for the reason that neither the surgeon nor physician has yet discovered a remedy which would warrant his exclusive claim. It is true that rest and iodide of potash by depressing the force of the circulation diminish the symptoms and alleviate the suffering of the patient; but we have not yet seen a case sufficiently cured by these means to enable the patient to follow the ordinary avocations of daily life for any considerable length of time. The benefits accompanying the use of the iodide are probably due to diminished heart action and lessened sensibility by action on the nervous system; but there is no reason to suppose that it directly produces deposition of fibrin within the aneurismal sac; indeed, we can conceive no greater reproach to scientific medicine than to find a practitioner prescribing iodide of potash as a solvent for fibrin in cases of pneumonia or tendons thickened by inflammation, while he advises its use in aneurism with the hope that it will cause a deposition of this very substance that he seeks to dissolve.

Another interesting example of this increasing tendency to local treatment will be found in hepatic phlebectomy as practiced by Dr. Harley, author of a well-known work on diseases of the liver. Dr. Harley was led to his method by recognizing the hopelessness of any attempt to withdraw blood from the liver by irritation of the abdominal walls since the vessels in the parietes have no communication with those in that organ.

In experimenting upon animals, he also noticed that the liver could be punctured without the production of any bad results, and therefore did not anticipate any

serious casuality from the same operation on the human subject. In the one case reported, a steel trocar, about eight inches long, was passed into the upper part of the liver, from right to left, and on withdrawing it for nearly an inch about twenty ounces of blood flowed through it. The wound was closed by a piece of plaster and hemorrhage into the peritoneal cavity prevented by the resiliency of the organ and an abdominal bandage firmly applied so as to bring the parietes and the liver in close contact.

Although the operation was undertaken as a last resort, the patient made a speedy and complete recovery.

A study of the history of medicine during the last ten years cannot fail to impress the reader with the small advance that has been made in the medicinal treatment of disease during that time. The annals of surgery for the corresponding epoch bristle with new and successful operations on the abdomen, thorax and brain, that not very long ago would have been regarded as indicating a reckless or even criminal disregard of human life on the part of the surgeon undertaking them. No field of scientific medical research has been so actively worked as that of therapeutics; the action of each drug on nerve, muscle and gland has been demonstrated with great precision; new remedies have been introduced and the effects of old ones have been explained; yet, notwithstanding this increased knowledge, the practice of medicine remains about the same. We do not entertain any Utopian dream of banishing death from this world, but, if it be true that "knowledge is power," we should hope to preserve from the last enemy many of those who are now cut down in their youth or the prime of their life by some acute disease, and relinquish only such as are aged and worn out by the burdens of many years.

Many failures are due to a disregard of the particular drug that is indicated, not by the disease but by each individual case, and a similar neglect to take into account the circumstances or condition of the system under which

the drug should be administered, in order that the patie may receive the greatest or even any benefit from it. T results obtained at the bedside frequently differ from th found in the laboratory, because due attention is not giv to the condition of the digestive tract at the time t medicine is administered, and consequently its acti may be impeded or totally arrested by the contents secretions of the stomach. Thus it is probable that p sine is occasionally prescribed in cases of indigesti without any effort being made to ascertain whether not sufficient acid is secreted by the stomach, althou every one knows that pepsine is only active in an a solution. A short time ago we met a prescription wh was evidently an attempt to solve the difficulty of diag sis by cutting the Gordian knot, as it called for pepsi nitro-muriatic acid and bi-carbonate of soda. It is unf tunate that so many of us undertake the treatment disease without turning our knowledge of physiology greater practical account; indeed, we are sometir tempted to believe that a few have relegated all they e knew regarding that science to the same oblivion as tl consigned the little bit of Latin they crammed up entrance examination. This is not as it should physiology stands in the same relation to the physic as does anatomy to the surgeon; in the treatment of sease the physician should endeavor to name the nor and perverted physiological processes in each individ case as clearly before his mind as the surgeon has the teries, veins and nerves that he is to avoid in the perfo ance of some operation.

It is not uncommon to hear a man who bases his tr ment upon scientific principles criticised as being "scientific cuss," a bright enough man, but neverthe something of a crank, while the author of the critici prides himself upon being eminently practical. T remark seems to imply an antagonism between the the and practice of medicine which does not exist, as the

ter is the progeny of the former. It is true that sometimes the results of the laboratory are pushed with a vigor that is not warranted by clinical experience, but nine times in ten the scientific physician is the progressive practitioner while the other is a conservative member of the profession, willing to use the weapons designed and tested by others, but slow to suggest any addition to the medical armamentarium.

The custom of appending an index of diseases with their corresponding remedies adopted in nearly all works on therapeutics is most injurious to the intelligent practice of medicine, for the index is more often abused than used, and remedies are selected from it at random and in a hap-hazard fashion without any particular reference to the case in question. We are liable to become too lazy to think out the applicability of different remedies, and consequently treat all cases as if the diseases were always a fixed quantity, requiring one and the same remedy, just as so much of a certain acid is neutralized by a fixed amount of a certain alkali. We admit that this index system meets the designs of the author in so far as it presents before the reader a list of the remedies that are generally used in the treatment of such disease, but on the other hand it leads to a slovenly method of prescribing which can only bring discredit and failure.

In treating the disease we sometimes forget to treat the patient. It has long been recognized that certain diseases are more prone to attack particular classes of people, and also that the same diseases present different types or run a different course in different men. This fact has lead to the recognition of constitutions, diathesis, temperament, and idiosyncracies, all of which terms are used, in a vague and indefinite way, to express the existence of physical peculiarities which in some unknown way modify the relation of the individual to health or disease. The study of this subject is very difficult and intricate, one that can only be learned by close observation and

clinical experience, but which nevertheless abundantly repays those who give it their attention. A valuable addition has been made to this department of medical literature during the past year by Jonathan Hutchinson in his little volume entitled "The Pedigree of Disease." The book is one that requires careful and thoughtful reading, but it makes clear and comprehensible many points upon which most of us are somewhat perplexed, and removes the ambiguity from the significance of many important terms. Temperament is defined as "the sum of the physical peculiarities of an individual, exclusive of all definite tendencies to disease," while diathesis is "any bodily condition, however induced, in virtue of which the individual is, through a long period, or usually through the whole life, prone to suffer from some peculiar type of disease." It will thus be seen that while temperament is congenital, permanent, and only affecting the type of disease without predisposing to it, diathesis may be congenital or acquired, permanent or temporary, and always manifests a proclivity or susceptibility to disease.

Discredit has been thrown upon the theory of constitutional peculiarities by the foolish attempts that have been made to diagnose a disease from the physiognomy of the patient, a proceeding that is at once unscientific and unreliable since race, sex, climate, exposure and numerous other conditions all influence the appearance or countenance so much that it is utterly impossible to mention any type that is characteristic of a diathesis or constitution. This method of diagnosing first the constitution and then the disease is indeed putting the cart before the horse, for a correct idea of the temperament or diathesis in any individual can only be arrived at by noticing the modifications in the physical signs which a known pathological condition produces in the patient. The morbid anatomical lesion in two cases of pneumonia may be identical, but the temperature, pulse,

degree of cerebral excitement and general constitutional disturbance may be vastly different, and this difference indicates the temperament and diathesis of the patient which, in turn, calls for particular modifications in the line of treatment to be pursued. The order, therefore, is disease, temperament and diathesis, treatment. When in addition to this constitutional peculiarity toward disease we remember the existence of varying susceptibility to drugs—how opium, that brings peaceful sleep to one person produces wild excitement in another, or how the application of cocaine, that is generally a harmless anæsthetic, has even in a very small dose been followed by fatal results—we see the importance of selecting our remedies not only according to the morbid anatomical change that they are calculated to remove, but also with relation to the pathological disturbance that this change produces in each individual patient.

It is, therefore, very evident that the true therapeutic treatment of disease is to be founded not only upon physiological investigation, but also upon clinical observation which must be undertaken by every physician for himself. There is too much "book" medicine at present, too great a tendency to regard the sick as something closely akin to a vessel containing certain noxious ingredients which are neutralized by the addition of certain antidotes; and too strong an inclination to look upon the patient as a machine out of repair instead of a living being in whom vital and chemical changes are taking place that must more or less interfere with our remedies.

These, Mr. President, are some of the obstacles that have stood in the way of progress in medicine during the past and many preceding years.

CROUP.

By P. M. LUSSON, M. D., San Jose.

It is unfortunate that this name should be applied to so many different forms of disease of the larynx and trachea, as it creates unnecessary confusion in the minds of people, many of whom cannot understand why some cases are so easily cured by old women and hive syrup, while others die under the most skillful professional treatment.

If we are to use the name of Croup, it should be always qualified by the word necessary to designate the nature of the case; and, as we have four well known forms, we should distinguish them as Catarrhal Croup, the simple congestive form; Spasmodic Croup, the nervous variety; Membranous or true Croup, the inflammatory; and Diphtheritic, the specific form (both of the latter) characterized by the formation of membrane. I am aware that these two are considered identical by many, who support their opinion by the results of pathological and anatomical observations, losing sight of the fact that causes may be different from effects.

As my object is to discuss only the two grave varieties of the disease, I will leave aside the first two, and invite your attention to the differences existing between the Membranous or inflammatory, and Diphtheritic Croup.

In Morell Mackenzie's work we find a full definition of the word Croup; but it is most likely derived from the

Gaelic "Crup," meaning a contraction of the throat, although the word "Croops" was first used in 1713 by Dr. Patrick Blair of Scotland. From the time of Pythagoras, D'Hauvanture and other writers described an affection of the larynx like it; from that early period until about 1735 little progress was made; then Etmuller, Rudberg and others gave a pathological description of Croup; but it was only in 1784 that Dr. Baird of New York, and Vreusseu of Geneva described three different forms.

The first reference probably made in this country is found in Harv. Grad., vol. 1, p. 94, where a number of children are said to have died from bladders in the wind-pipe in 1659.

The modern history of Croup begins in 1821 with Bretonneau, who believed in the identity of the membranous and diphtheritic forms, although he, as well as Trousseau, Rilliet and Barthez, thought it strange that it was sometimes sporadic and again epidemic. Rilliet said "that epidemic Croup is often combined with pseudo membranous laryngitis; while, when it is sporadic, it may begin in the larnyx." As to contagion, opinions were divided. Jurine and Bricheteau denied that it was contagious; while Wichmann, Field, Rosen, Guersant and Bretonneau believed that it was. Rilliet was in doubt.

In 1847 Virchow made what I believe to be the true pathological distinction between Membranous and Diphtheritic Croup, in stating that in diphtheria the exudation is poured into the substance of the mucous membrane and causes death or necrosis of the subjacent tissues; whereas in the simple membranous form the exudation is like a coagulation upon the membrane and can easily be detached from it. That they are produced by different causes must be admitted; otherwise, how is it that from 1750 to 1850 old and experienced men of the profession, who observed many cases of Membranous Croup, did not consider them contagious, and looked upon them as cases of laryngitis with exudation? Septic symptoms

were not observed, which could not have been the case had Diphtheria then existed.

From 1846 to 1859 the annual mortality from Croup in Philadelphia varied from 111 to 312, no deaths from Diphtheria being recorded. From 1860 to 1879 the annual death rate from Croup ranged from 185 to 455, while that from Diphtheria was from 110 to 708. It is not likely that the 3078 deaths recorded in that city previous to 1859 as from Membranous Croup were caused by Diphtheria, as not a single case of that disease was reported. So, from the advent of Diphtheria in this country we notice a greatly increased mortality from Croup; but at the beginning of its appearance the deaths assigned to Membranous Croup greatly outnumbered those from Diphtheria: as, in New York, in 1858, five died from Diphtheria and 478 from Croup. These facts show very plainly that Membranous Croup is a simple, inflammatory, non-contagious disease, although sometimes prevailing at the same time with Diphtheria, owing to certain atmospheric influences. This happened in my practice last winter. I had one case of Diphtheritic Croup in a family where one of the children had had Diphtheria before; while I had four cases of simple Membranous Croup in different families of several children, where there were no other cases before or after, although they were all more or less exposed to the disease. I have had the same experience for many years past.

Membranous Croup is essentially a disease of childhood, while Diphtheria often attacks adults. Heredity exerts a marked influence in Membranous Croup.

What I have already stated proves that the etiology of these two diseases is still in doubt and will probably remain so until the germ of Diphtheria is discovered.

Where Diphtheria is not prevalent, a cold damp atmosphere with sudden changes of the temperature are the predisposing causes of Membranous Croup, no matter how pure the air may otherwise be, but in addition to

these causes, impure air, water or food containing the specific germ are essential to cause Diphtheritic Croup. Some also believe the latter may be caused by auto-inoculation, but that must be of rare occurrence. Contagion through the air is now believed to be the most frequent cause. To more plainly show the symptoms of these two forms necessary in making a differential diagnosis, I have copied tables from different writers, which, with the results of my own observation, are as follows:

Symptoms of Pseudo-Membranous Croup:	Symptoms of Diphtheritic Croup:
A local disease.	A constitutional disease.
Begins in the larynx.	Begins in the fauces.
Pharynx only occasionally affected.	Pharynx invariably affected.
Membrane easily removed	Membrane firmly attached to parts beneath.
A pearly white membrane	A dead white membrane dark or purplish at edges.
No areola and well defined edges.	Marked areola and ragged edges.
Not traceable to local causes.	Often traceable to impure air.
Seldom occurs in adults.	Often occurs in adults.
Neither contagious nor infectious.	Both contagious and infectious.
Not epidemic.	Often epidemic.
Does not disappear for long periods.	Does so disappear.
A sthenic disease.	An asthenic disease.
Membrane does not extend to nares.	Membrane often extends to nares.
No symptoms of Septicæmia.	Symptoms of Septicæmia generally present.
No affection of lymphatics	Lymphatics usually affected.

No Albumenuria.	Albumenuria common.
Neither attended or followed by paralysis.	Paralysis not infrequent.
Death seldom caused by syncope.	Death often caused by syncope.
Death due to suffocation.	Death frequently results from other causes.
Temperature almost always above normal.	Temperature quite low and sometimes below normal in malignant cases.
Fever at times quite high.	No tendency to hyperpyrexia.

Yet, in places infected with Diphtheria, the clinical history and appearances are so nearly alike that it is not always easy to determine to which class a case may belong, especially in the early stage, when it is very important to know if it be Diphtheria so as to isolate it. In such cases it is better to act as if it were contagious. Kissing patients so affected or inhaling their breath should be avoided by the relations or nurses, as many sad deaths have resulted from neglect of these precautions.

The prognosis is generally considered equally grave in both of the aforementioned forms of Croup, and, in spite of our best efforts with medical treatment, the mortality is very large, only twenty to thirty per cent. being saved, according to my experience, although statistics make the mortality from fifty to eighty per cent. I believe the result would be much better, if we were called in the early stage; but usually we are called when the membrane is fully formed and the child is suffering from dyspnœa. The younger the child, the more fatal it is. When occurring in the latter stages of Diphtheria, it is usually of a milder type. When the symptoms are developed slowly, I have found the prognosis more favorable. When occurring with, or fol-

lowing, exanthematous diseases, the cases are very dangerous, owing to the depression of the vital powers by the primary disease. Extension to the bronchi is serious, but not necessarily fatal. The result also depends a great deal upon the type of the disease, mild cases yielding sometimes easily to treatment. Rilliet states that more boys than girls are saved.

TREATMENT.—As far back as A. D. 340, Antylus is reported to have performed tracheotomy several times, and since then it has been constantly recommended; yet it is comparatively seldom performed, although it should take the first rank in the treatment of these dreadful diseases. To be successful, it ought to be performed early, before the child begins to be exhausted and as soon as we find that the ordinary means of treatment have failed to give relief; by so doing, Trousseau saved forty per cent. of his hospital cases and in his private cases he is reported as having had, between 1851 and 1854, twenty-four operations, with fourteen recoveries. All statistics show particularly unfavorable results with patients under two years of age. The older the child the better the prognosis. In Dr. Solis Cohen's monograph on Croup and tracheotomy, statistics are given of this operation in different countries; those from American sources include 325 cases with 84 recoveries; in eight London hospitals, 170 operations with 57 recoveries. As the experience of some operators is more unfavorable in cases of Diphtheria, it may be that a better result might be reached in cases of Membranous Croup. In regard to the operation itself, Trousseau, West, and R. W. Parker, lay particular stress upon the importance of cleaning out the trachea before inserting the tube.

OF THE REMEDIAL AGENTS.—Probably our best remedies in the first stage are: Small doses of calomel and ipecacuanha, and corrosive sublimate in doses of gr. 1-50 to 1-100 repeated every two or three hours for a day,

more or less, with an occasional emetic of alum, or the hypodermic injection of apomorphia, if the latter remedy does not excite vomiting; warm applications to the chest, and carbolic acid, or lactic acid, of the strength of thirty drops to the ounce, and lime water. I have found all other means of little or no efficacy, although I have experimented with a great many. In cases of Diphtheritic Croup, stimulants and quinine must be given from the beginning; and in both forms, nourishing substances, easy of digestion, are necessary. Throughout the course of treatment, an equable, moist temperature of about 70 deg. F. should be maintained. In a case of paralysis of the fauces following Diphtheria, I sustained life many days, and almost saved the patient by hypodermic injections of ether, caffein and nux vomica, feeding the patient by means of a stomach tube.

REPORT ON SURGERY.

THE DISASTERS OF SURGERY.

By T. W. HUNTINGTON, M. D., of Sacramento, Chairman.

In fulfillment of the task imposed upon me as chairman of your committee on surgery, I shall, without apology, follow a worthy precedent in abandoning the plan of a formal report.

In their struggle for ascendency in point of merit and of patronage, the professional periodicals, with commendable enterprise, seize upon the materials which such a report might embody, and we have at hand, each week, a bulletin more elaborate and satisfactory than could possibly be compassed by the chronicle of events contemplated by the rules of this society.

The annals of surgery for more than three centuries are replete with reliable records of achievements. The traditions, superstitions and errors, which characterized surgical procedures during the earlier ages, furnished the materials and the discipline for later victories. The inspiration of Hippocrates, of Celsus, and of Galen survived as an original force to make amends for the infamous sophistry and the vicious jugglery, which had sprung, during the mediæval period, in part from the cloister, in part from the street. As "genius with his sunshine and music hovers close by the darkest and deafest eras," so with the revival of letters which marked the sixteenth

century as one of the memorable epochs in the history of civilization, systematic surgery received a marvelous impulse through the researches of Vesalius, the father of anatomy, and more especially of Ambrose Pare, the barber surgeon of Mayenne.

A little later and we are attracted by the central figure of his age, the pioneer in the untrodden paths of inquiry, the inventor of that marvelous intellectual process, induction, by which a science was formulated from the chaos of facts and factors, which had hitherto been divorced from system and unrestrained by law. His discovery of the circulation at once elevated physiology to its powerful place among the sciences, and established it as the most dignified ally of surgery. The weapons he employed so effectually were his richest legacy to those who followed him in the field of original research.

In the brief and desultory allusion to a life so pregnant with interest to us all, you have anticipated me, and I refer to the career of William Harvey, reverently, and without hope of adding new lustre to his name.

Beginning with this dividing line between an empiricism and a science, we might spend a delightful hour in recalling the numberless stages of progress and the marvelous victories which have followed in rapid succession. We should find no generation without its quota of illustrious names. The celebrities of to-day are not more celebrated than the earliest masters in their time. We should discover the counterparts of Pasteur and Koch, of Lister and Billroth, of Keith and Wells, of Gross and Billings, in the Bells, the Hunters, the Dupuytrens, the Larreys, the Coopers and the Motts. There is no era whose record is not an essential chapter, no century which does not complete a volume in the history of surgical science.

But as we scan more critically the pages of each volume in its turn, we discover written between the lines a confession of failure where we first learned only of achieve-

ments, a tale of disappointment where once we read of victory. And as the geniuses, whose loyalty to science made them the law-givers of science, are to-day quoted in proof of their own absurdities ; as the chiefest actors of the past have experienced the humiliation of defeat, so is he, who lives under the light of present knowledge, indeed fortunate to have wholly escaped it.

This unwritten history of events, many of which have been relegated to an obscurity from which there is no recall, has suggested a theme for this occasion.

The disasters of surgery have a two-fold bearing. In the estimation of the humanitarian, the patient's general welfare, his absolution from physical suffering and his final recovery, are the chief ends attainable. But from a scientific standpoint, where the main issue at stake is the determination of a clearly defined policy for future action, the success or failure attending a given procedure has a broader and more vital significance.

It is proper at the outset to eliminate such disasters as are the legitimate sequence of disease or traumatism. Our interest centers only in those which should be anticipated and annulled. By an injury, the integrity of a joint is now and then irrevocably impaired ; the circumstances of an accident, such as hemorrhage, shock or encroachment upon a vital part, may lead rapidly to the death of a patient after an amputation. The same principle holds in the various forms of malignant disease, where operative interference is only invoked as a last resort.

On the other hand trifling wounds too often assume a threatening aspect through the noxious influence of foul dressings; occasionally, an extremity is permanently crippled by a deposit of inflammatory product within muscular sheaths or about tendons ; an accumulation of pus is left to dissect a channel of communication with a serous cavity, or a mal-alignment and deformity in a neglected fracture, after firm union has rendered revision impossi-

ble, disgust and appal the attendant, not less than the unfortunate sufferer.

It is with oft-recurring exigencies such as these, casualties in truth, lasting monuments erected by outraged nature to apathy, cowardice or the "expectant method" that we have to deal.

By far the largest class of surgical emergencies, aside from the minor traumatisms, are the primarily circumscribed inflammations, such as carbuncle, paronychia, palmar and plantar abscesses. Not one of these conditions but has furnished, and is furnishing its full quota of most distressing calamities. No surgeon enjoying a reputation for skill but can call to mind a long array of distorted and stiffened members, unsightly cicatrices, necroses, diffused cellular inflammations, amputations, not only of fingers and toes, but of hands, arms and feet, with now and then a shocking fatality; all this aside from an enormous aggregate of unnecessary anguish.

A careful study of the history of these unfortunate cases will discover a common error in the management of them. The fault lies often at the attendant's door, and springs from an ill-defined terror lest a resort to the bistoury should fail of revealing a pus-distended cavity. It matters not a whit that such a procedure be not rewarded by an outflowing of pent-up fluid. Early local depletion will have surely relieved distention, and by the most logical and reliable method a threatened casuality will have been averted. In lieu of a remedy which offers an intelligent and the only radical relief where a throbbing, distended and indurated surface is under observation, a makeshift, time-serving policy is adopted, a poultice ordered, and the vicious process is spurred on to the accomplishment of its devilish purpose. If the signs of the times be not misleading, we may reasonably hope that the day is not far distant when the poultice with its multiplicity of stenches and its slippery, slimy nastiness will be discarded from the surgeon's armamen-

tarium, to be superseded in the class of cases now under consideration by an early, free incision, an antiseptic bath, and a dry, aseptic, infrequent dressing.

You will agree with me that in the attainment of this object the surgeon will find ample room for the exercise of that decision of character, firmness and master-ship of the situation, without which his wisest counsel will be overruled and his best efforts annulled by the timidity, ignorance or arrogance of his client.

For the purposes of this discussion, operative surgery and wound treatment are inseparable. The wonderful precision in diagnosis and manipulation, which is the boast of the bold and skillful, is of small moment, if it be not wedded to a rational, scientific method of after-treatment. Intrenched as we are or should be behind the defenses provided for wound protection by theoretical and experimental research, it seems that we ought to look in vain for disasters in this department of surgery, at least after elimination of primarily infected cases. But to our chagrin, indeed to the discredit of the profession, cellulitis, erysipelas and gangrene still beset the surgeon's pathway. Not unfrequently wounds failing of primary union heal by granulation after a protracted period of suppuration. Here and there stumps are found in part or wholly denuded of their coverings. Sinuses in the line of incisions lead down to infected cloacæ. Compound fractures occasionally demand secondary amputation for necrosis and non-union, or terminate in death from septic poisoning.

If, reasonably, such results as these could be attributed to purely accidental causes; if there were an avenue of escape from reproach through the law of precedent, then would explanation, reproof or apology be alike unnecessary. But fortunately there is accorded to the modern surgeon the possibility of absolute immunity from accident and as fortunately the law of precedent in relation to scientific precepts is no longer inexorable.

An impression seems to have gained currency in certain quarters that the recent methods of wound treatment, the methods that are recognized as capable of precluding disaster and insuring victory, are complex and difficult of attainment. This so-called complexity is only apparent. From it has been evolved a simplicity at once delightful and reassuring. A perfect system is the underlying principle, and recognition of this system is the main essential to complete success. Knowledge of materials, an ample provision of same in anticipation of their employment, and an intelligent idea of their application, are the few remaining factors. If this means drudgery, it as surely means triumph.

From all this springs naturally the idea of thorough exhaustive preliminary preparation in reference to details. No surgeon in approaching an ordeal, be it trifling or momentous, has any guarantee of a fortunate issue without personal, painstaking supervision of the appointments of the occasion.

The employment of some one of the various antiseptics is universally admitted to be efficacious, if not essential, in avoiding wound infection. The credibility of this assertion is not clouded in the least by the protests of the few renowned and successful operators who stubbornly persist in maintaining the superiority of asepticity through perfect cleanliness over asepticity secured by the use of germicides. By a slightly divergent route, they claim, probably with truth, to arrive as quickly and safely at the same destination.

In the words of a recent writer, "the phrase 'simple cleanliness' or 'mere cleanliness' has a meaning not dreamed of by some colleagues." To this let me add that as "the winds and waves are always on the side of the ablest navigators," so the credulous surgeon should mark well the fact, that along the pathway of those whose guiding star is asepticism, there are unmistakable evidences of marvelous skill and admirable cleverness in

the regulation of circumstances and environs, which are beyond the attainment of most of us.

Submitting the policy of asepsis or antisepsis to the preference or prejudice of the individual, the subsequent steps incident to wound treatment admit of no cavil. As a consequence of the demonstration that carefully preserved animal fibre is readily absorbable when in contact with living tissue, the buried catgut ligature has greatly simplified the matter of control of hemorrhage. No adequate excuse can be offered for further resort to silk thread with dependent ends, which is not only an impediment to the union of flaps, but by maintaining an open channel to the wound cavity, affords a ready means of ingress for external infective agents. Only those who have waited anxiously for the separation of the silken ligature with its ten days' accumulation of foul detritus from its anchorage at the extremity of an important vessel, can properly estimate the relief engendered by the knowledge that a catgut band once dexterously adjusted may thereafter be dismissed from mind so far as the safety of the patient is concerned.

To a lack of efficient drainage are traceable many of the most distressing casualties that follow in the wake of wound treatment. The significance of a mass of coagula beneath the coverings of a recent wound or of a collection of putrescent fluids retained within a suppurating cavity cannot be misinterpreted. What the perfect sewerage system is to sanitary science, an intelligent plan for wound drainage is to surgery. As disregard of the former constitutes a crime against society, so as surely does neglect of the latter entail disaster to the individual.

The materials required are easily obtainable. Small perforated rubber tubing is best suited to large surfaces or cavities. The special adaptability of horsehair for drainage purposes seems not to be generally appreciated. It is especially useful in long, tortuous sinuses beneath

fascia or between tendons and bones; and in small infected wounds where a circumscribed cellulitis has been established it is invaluable.

The employment of silk for sutures is scarcely less to be deprecated than for ligatures. Especially is this true of the soiled and crumpled wad, so often called into requisition from the folds of the ordinary surgeon's pocket case. Silver wire, while in all respects its superior, may be rendered aseptic by running it through the flame of a lamp. In the absence of wire, resort may be had to horsehair, which becomes both pliable and safe after a few minutes immersion in boiling water. This material, by the way, is admirably adapted to wounds of the face and other exposed parts, in that its use is less liable to produce an unsightly sawtooth appearance along the margin of cicatrices.

The technique of wound covering, from the standpoint of what is essential, is very simple, and merits but passing mention. As infrequent dressings promote uninterrupted repair, an abundance of some dry, soft aseptic material is the main requisite. The cheapest variety of cotton fabric, saturated with sublimate solution and thoroughly dried, answers every purpose. In anticipation of a copious outpouring of fluids from large areas, a cheaper and more porous substance, such as oakum will aid in retaining discharges.

An intelligent, scrupulous, systematic employment of each and all of the foregoing rational measures has rendered possible the total abolishment of the most familiar and oft-recurring disasters in wound treatment. The omission of any precautionary step is hazardous; while complete abandonment of the grand principle of asepsis amounts to an open protest against the experience and the progress of two decades.

The subject of fracture treatment as affected by results obtained under a diversity of methods and by many individuals must be approached with extreme delicacy. No

line of action in the entire field of surgery is more exposed to misrepresentation, more subject to the direful influence of faint praise, or less defensible against the poisoned arrows of the ignorant or malicious. The outcome in every instance depends upon numerous inconstant conditions and incidents. These in turn are capable of an infinitude of combinations; and a constantly changing personal equation on the part of patient and operator measurably lessens the weight of evidence drawn from statistics. It follows naturally from this that many disasters noted in this connection are apparent rather than real, and that the tones of judgment based upon any knowledge short of a comprehensive, unbroken history of every factor in the case must be softened by more than a modicum of charity.

The close observer will discover two facts having an important bearing upon this subject.

First—That restoration to perfect structural outline and to functional activity is in a respectable minority of cases either improbable or wholly impossible.

Second—That something more than elaborately constructed or highly accredited apparatus is essential to the most favorable result attainable. It is no secret that deep disappointment has many times sprung from an overruling confidence in one of the complex, grotesque contrivances, whose highest office should be to fill a niche in a museum of surgical antiquities. But whether the selection bears the trade-mark of its patentee and the polish of the workshop, or betrays the ruder finish, though often superior fitness of the surgeon's handiwork, in its employment the greatest ingenuity, skill and foresight will be in sharp demand.

The former assertion has reference to surgical disasters, as related to unavoidable consequences, those which, if not fore-ordained, compromise the surgeon in exact ratio to the disability present in the affected member. In a word it suggests the idea of self protection through the

agency of diagnostic and prognostic measures. Exhaustive exploration of a suspected seat of fracture is the only basis for a reliable forecast, as it is for rational treatment. Recourse to profound anæsthesia, where existing conditions are in doubt and grave responsibilities imposed, is not only warrantable but imperative, and not one of the methods of precision suggested by genius or common sense can with safety be ignored.

The next step in pursuance of this policy is one of the most important in the series. Its omission amounts to an abandonment of the surgeon's chiefest safeguard, and deliberate preparation for a harvest of reproach, if not of persecution. While a perfectly accurate knowledge of the situation is essential to the surgeon in determining future action, yet the greatest possible profit to be gained therefrom will not be realized, until every circumstance affecting complete or partial restitution of form or function shall have been imparted to the patient and others interested in his welfare. It is true that a positively adverse opinion, or even a confession of a doubt in reference to probable impairment after a complicated fracture will occasionally ensure the operator's withdrawal as charge of affairs; but such an event is unworthy of mention when compared with the embarrassment that will surely be entailed by a meretricious policy dictated by hypocrisy and deception. Of not less importance is the preservation of an accurately detailed history of incidents and minutiæ pertaining to an injury throughout its entire career. Aside from its purely scientific bearing, the highest usefulness of a plan endorsed if not invariably followed by the most eminent and cautious, proceeds from the fact that it ensures on the part of the attendant a constant and painstaking review of his field of action. Attention is drawn to decisive steps, which owing to stress of circumstances have been neglected: and furthermore in event of unwarrantable and malicious prosecution, a reliable record setting

forth the surgeon's views, with concurrent opinions of his consultants, the patient's cooperation in treatment or its absence, adverse circumstances whose intervention has interrupted or prevented repair, and all matters reflecting upon the conduct of either party to the case, will furnish the most conclusive and unassailable evidence in the programme for defense.

The second statement which introduced this topic embodies every factor in the mechanics of fracture treatment —although the demand for manipulative skill, ready knowledge and clinical experience is most urgent when the lesion is complex and involved in doubt, yet it must not be forgotten that in the avoidance of deformity, the amount of individual responsibility incurred is greatest when the injury is uncomplicated and the outlook favorable. Hence the necessity in every case for a general plan of operations, and a rational method in arrangement of details and employment of auxilliaries.

In the history of most fractures the crisis is reached with the completion of the initial dressing. Upon the thoroughness and accuracy that mark this procedure it is possible to predicate an intelligent forecast of the outcome. Delay in the adoption of radical, effective measures is a fatal barrier to success. A temporary dressing applied recklessly and apologetically over a recognized displacement, with an explicit or implied promise of future revision is a bold affront to sound doctrine as it is the merest travesty upon correct surgical methods. Unrelenting, firm but gentle manipulation will often restore the normal relation of fragments, even when the situation seems well-nigh hopeless. This end will never be so easily achieved as in the infancy of a lesion, and failure in the early correction of a defect, can only be interpreted as a signal of defeat.

Perfect adjustment having finally been secured, and mal-alignment corrected, permanent maintenance of these conditions will involve no less annoyance and perplexity.

The perversity of fragments, incited to rebelliousness by muscular action and recent tissue changes renders frequent recourse to originality and ingenuity imperative.

Direct extension is one of the most efficient accessories to the preservation of alignment, and through this measure far greater advantage is attainable than is customary. Even in fractures of the lower extremity, to which its use has been mainly confined, it is too often omitted, while its adaptibility to those of the fore-arm and at the elbow joint seems rarely to have been confessed.

The necessity for immobilization of adjacent articulations, though clearly manifest, is occasionally lost sight of; while frantic efforts to extort a promise of good fortune from methods less simple meet only with stubborn refusal.

In ensuring comfort to the patient and success in treatment, the first step should be to devise such a means of support as will maintain normal relations with a minimum of wearisome restraint and of direct pressure upon limited areas. A greater number of avoidable disasters in fracture treatment originate from a violation of this simple injunction than from any other source, while obedience to the law implies only a religious avoidance of bony prominences and careful adaptation to contours. The splint which is dexterously fitted to inferior or lateral surfaces, of sufficient length to overreach the distal extremity and to prevent movement in the proximal joint, will almost invariably fulfill these requisites. An additional advantage is to be derived from close contiguity of an appliance to affected parts. To this end a smooth, thin layer of muslin forms a lining unspeakably superior to the soft and yielding masses of cotton wool that are much in vogue.

Bandaging is an art capable of the highest degree of development. It is both surprising and unfortunate that perfection in it is so rarely attained. Possibly this subject, upon a thorough knowledge of which depends far more

than the bungler or the novice suspects, receives too little recognition on the part of instructors. Certain it is that the application of a roller neatly, effectively and with a perfect understanding as to where and to what extent direct pressure may be exerted as an agent of relief instead of torture, is an accomplishment whose appreciation depends upon thorough acquirement.

Before dismissing this subject, the matter of frequent or infrequent dressing of fractures, pending repair, merits brief mention. The general superiority of either plan is by no means established, as is evidenced by the fact that permanent, immovable dressings are still the chief reliance of a few who are worthy of emulation. The incidents and peculiarities of a case must, to a certain extent, determine its management; but whatever may be the advantages accruing from the use of permanent appliances, they are measurably offset by the apparent risks of early displacement or angularity, which are only detected when correction is impossible. On the other hand, it is a matter of common experience that angularity may be corrected readily and without detriment after considerable progress has been made towards union. Again, in fractures closely related to joint structures, frequent inspection becomes imperative in affording ample opportunity for resort to early passive motion, upon which must largely depend the chances of future articular activity.

The fatalities which now and then attend the production of anæsthesia are, perhaps, the most deplorable, as they are the most difficult of explanation of all the disasters following surgical procedures. A death directly attributable to this cause is somehow unpleasantly suggestive of homicide. From the standpoint of the laity this is so proverbial that even the most experienced are terrified by the earliest threatenings of danger. The superiority of ether over chloroform, in point of safety, has been established beyond peradventure. Commenta-

ries upon this question are so numerous, the canvass has been so admirably conducted, and the conclusions, based upon scientific reasoning and statistical information, are so apparent that further argument is useless. Hence the choice of an anæsthetic becomes a matter of principle rather than judgment, and an habitual employment of the unsafer agent evidences rashness for which the plea of convenience and economy of time is but an insufficient apology.

The domain, over which is exercised the surgeon's art, has in these later years grown so ample, and the incidents which fall within the scope of this paper are so manifold, that time will admit of nothing more than a review of leading features. My plea has been for the adoption of a policy that shall govern incident, for sleepless vigilance, for the severest discipline in the discharge of duty, and above all for an unswerving faith in methods which have stood the test of long experience.

The subject, though full of profit, may awaken memories not altogether free from bitterness and regret. But Emerson says, "show me the man who has acted, and who has not been the victim and the slave of his action." Few, I fancy, in accepting this challenge will point to their own experience in justification thereof.

Finally, let us remember that victories not more than reverses have been important factors in the march of progress; that as the former inspire enthusiasm and courage for new enterprises, the latter as surely beget caution and foresight in planning new campaigns.

REPORT OF COMMITTEE

ON

TOPOGRAPHY AND METEOROLOGY OF CALIFORNIA

IN THEIR THERAPEUTICAL RELATION TO DISEASE.

By J. B. TREMBLEY, M. D., Oakland, Chairman.

Mr. President and Members of the Medical Society of the State of California:

Your committee have but little to report on the progress that climatic therapeutics has made since the last meeting of this society.

It was hoped one year ago that ere we met again a permanent foundation would have been laid by legislative enactment to perfect a meteorological "*State Weather Service,*" from whose reports could soon be formulated such meteorolgical factors as would determine the therapeutical value of any place or locality where observations were taken within the State.

A bill was prepared with much care to the exact wants of legislative aid, and presented to the last Legislature in session. It was brought before the Senate Committee on Finance, by the Hon. Frank J. Moffitt, Senator from Oakland, Alameda Co., California. He wrote me soon after as follows:

"SENATE CHAMBER,
Sacramento, January 25th, 1887.

MY DEAR DOCTOR: I had your (our) bill before the Committee on Finance. It met with vigorous opposition.

OBJECTIONS AS FOLLOWS:

First. It creates a new institution which will require a permanent appropriation.

Second. Because it is needless.

Third. Because it would cause the United States Service to neglect California.

However, I succeeded in not having the bill acted on until its friends could appear in a body before the committee. Let me know a day before this is done.

Very respectfully yours,

FRANK J. MOFFITT."

From the above letter comment on the objections is unnecessary, when we bear in mind, that a bill rarely ever passes a California Legislature by reason of its own merit, or by reason of its being advantageous to the welfare of the whole commonwealth. Where individual aggrandizement and venality are the primary objects of a legislator, the people and state must suffer.

The following were the comments of several newspapers or daily journals published in the State on the subject of a "*State Weather Service*" and the advantages to be derived therefrom by the people in their various vocations:

[OAKLAND TRIBUNE.]

As the means of collecting information relative to the forecasting of weather and many other facts pertaining to the meteorology of any local or general section of country is the same, the system of a well-conducted State weather service, will carry almost positive knowledge to every citizen of the State what the weather will be for the several days to come, and warn those industries affected by any atmospherical changes to be prepared and save themselves from loss and damage—by wind and storm—or benefited by fair and pleasant weather.

What the barometer or glass is to the mariner on the ocean, the service will be to the people in those portions of the State wherever stations are located and the country contiguous thereto. As agriculture lies at the base of continued prosperity of every country, anything which can be done to make it as an industry more available and

certain is worthy of deep consideration. The welfare of a State or nation depends on its capacity to produce food. Where this is abundant, there is found strength and unlimited resources. To save time by experiment, toil by fore-knowledge, and hope from disappointment, is the aim and design of an efficient weather service, and those who entertain but little information on this subject can readily conceive the great benefit which the entire people will receive, as will the communities and individuals.

In presenting a bill, organizing a "California State Weather Service," and putting it into complete working order, it is expected that each legislator has acquired sufficient climatological knowledge to see the necessity of such a service and lend it his legislative support as a measure in which every constituent has a direct interest, one way or another. OBSERVER.

OAKLAND, December 31, 1886.

[SAN FRANCISCO CHRONICLE.]

The following advantages of a State weather service are claimed :

First—That the benefits of the warnings issued by the Signal Service may be accessible to the people in every portion of the State.

Second—That there will be accumulated in scientific form an array of data which when studied will be the means of securing to the Signal Service of the United States better forecasts of winds, rainstorms and other weather changes pertaining to the climatology of the State, northers and the like.

Third—That it will establish standards for the various meteorological elements, making all records mutually comparable.

Fourth—That it will publicly disseminate this knowledge in the shape of a public document which will become an official meteorological record for use in scientific investigations and legal cases, and of great benefit to intending settlers.

Fifth—That it will inaugurate and apply a system of dissemination of weather forecasts by signal telegraph and telephone which will be highly beneficial to the great citrus, wine, agricultural, horticultural industries and other interests of the people of the State.

Sixth—That it will lead to a better knowledge of the water supply, as effecting reservoirs, artesian wells, irrigation, drainage and works of general utility, and also the effects of forests and their elevation relating to the precipitation of moisture.

Seventh—It will lead to a better practice of medicine, when physicians throughout the State can study diseases with reliable and accurate meteorological facts by their side; and for sanitary purposes correct meteorological statistics are invaluable to the practitioner in applying preventive remedies for the public good.

[RECORD-UNION, SACRAMENTO.]

Many of the States in the Union have a State Weather Service in conjunction with the United States Signal Service, which is maintained at a small outlay. The observations are taken at different points by responsible parties who take enough interest in natural science, meteorology, climatology, etc., to attend to taking them without cost. They are furnished with franked envelopes by the Chief Signal Officer, so that about the only cost necessary are the instruments and labor performed by the Central Office where weekly reports are tabulated and furnished the daily press.

These reports are issued in the form of bulletins, giving the weather changes and such other information of interest to the agriculturists of the State.

Should this system be connected with the State Agricultural Society, there could also be issued a weekly report of the crop outlook for each vicinity at which the observation is taken.

The people of this State take great interest in its climatic condition, and should be furnished with proper data at stated periods, from a responsible and official source. This could be accomplished at little expense to the State, and we would ask a careful consideration of this subject by your Excellency, to the end that it may receive such reconsideration as may be of benefit to the State in your biennial message to the Legislature.

SUPPLEMENTAL REPORT

OF COMMITTEE ON

TOPOGRAPHY AND METEOROLOGY OF CALIFORNIA

IN THEIR THERAPEUTICAL RELATION TO DISEASE.

By J. B. TREMBLEY, M. D., Oakland, Chairman.

To gather clinical facts illustrating the favorable and unfavorable influence of climate over disease is attended with so many difficulties that it seems almost impossible to approach anything like a concise analytical study from observation so far made. To search for records based on scientific data is nearly useless, as far as placing any reliance on them. Whatever has been done is more from the traditions of the aboriginal inhabitants, and afterwards by the observations of early pioneers, than from scientific research.

To look over the field of the past, one will find from time immemorial a recognition of climatic influences over disease, but the direct causes or agencies which work to produce the effects are unaccounted for, and we are left without any positive idea other than the axiomatic one —that such results are produced by a residence in certain localities.

Knowing this, it becomes almost an equation of condition in deducing those causes that have led to the truthfulness of the unscientific observations, and opens the way for science to demonstrate and make us acquainted

with the elements that either individually or collectively enter into and become factors in climatic therapeutics.

To arrive at this knowledge is the object under consideration, however improbable and utopian the suggestions may appear. After many years of meteorological study and watching the progress that the science of meteorology has made under individual enterprise and aid of the United States Signal Service, many complex facts have been fully analyzed; and the power of each factor that enters into the formation of climate becomes well-known.

Knowing what these general meteorological factors are, and the correlation to the surrounding influences that act in conjunction with them, we can soon arrive to an almost positive knowledge of the hygienic condition of any locality where accurate observations are made. To accomplish this, the General Government has done much during the past ten or fifteen years to develop meteorological science, and at the present time, through the Signal Offices and volunteer observers, a large amount of material has been gathered: but the utilization thus far has all been for the interest of agriculture and commerce. The benefit to those engaged in these vocations and the nation at large, if looked upon in a financial relation, would run up in its amount to hundreds of millions of dollars.

The nation has never been unmindful of her prosperity in almost every particular in this direction; but when it comes to the health and life of its people it has never given it that consideration which the subject demands, but left it to the voluntary act of those humanitarians or persons who were willing to work for the benefit which they could bestow in their studies and teachings upon mankind.

This should not be so, for the State has, or should have, a larger interest in the health and life of her population than in any other direction in which she could bestow

her aid. Her power and greatness consists in her productive capacity. The lives and health of her subjects maintain her wealth and power. Each life that is sacrificed through ignorance and neglect is so much waste in her political economy, and leaves her far from being uncensurable.

At the present time there does not appear a way open, on this coast, for acquiring, with any degree of certainty, the climate of any locality in its therapeutical relations to disease.

To accomplish this we must look to the medical profession—to those men who love the truth for the truth's sake, who are ever seeking knowledge which will in the ultimate benefit and bless the human race—who are willing to interest themselves sufficiently to make observations with accurate instruments, uniform in registration, wherever a station is located. If this should ever be determined upon, and medical men could be found who were willing to take upon themselves this labor, they should be provided with blank forms alike at each station or locality, representing one month's observations, or twelve filled forms for the year. To make a suggestion, there should be a central office or locality where each month's forms should be sent, where they could be properly tabulated, printed, and returned in a synopsis of the whole to each observer. Is there any reason why the State Board of Health could not attend to this business, as far as concerns furnishing blank forms, doing the clerical work, and publishing the monthly results of observations in their health bulletin? It does not seem that there could be any objection to this suggestion, when the information derived therefrom was fully comprehended by the State Board as well as the observer. Some distinctive requisites are very essential in each person who is intrusted to make observations. 1st. Absolute truthfulness and accuracy. Without this, observations would be of little account in formulating the climate of any locali-

ty. 2d. Instruments used should be correct in their registering of atmospheric conditions, and, if possible, all obtained of one instrument maker.

The elemental factors essential to correct knowledge have already been alluded to, and consist of the following:

1st. Barometrical pressure and changes, expressed in *altitude.*

2d. Thermometrical conditions expressed in *temperature.*

3d. Hygrometrical readings expressed in *humidity.*

4th. Cloudiness of the horizon, expressed in *per centages.*

5th. Density of the air expressed in *diathermancy.*

6th. Force, direction and velocity of the *prevailing winds.*

7th. Light and ozone.

After these elements are positively known of any place or locality, there are a few other things essential to be understood by the medical man before he advises his patient in regard to the place of residence where the most relief can be obtained by climatic influence. 1st. A thorough pathological knowledge of the invalid's disease should be known. 2d. The physician should be thoroughly advised of the adaptation of climate to his patient's requirements. 3d. He should know, if possible, by experience what the commissariat is of the place, as well as the social and hygienic conditions.

It has been well said—"However favorable climatic conditions may be, if the few things which are essential to the patient's welfare are neglected, the changed relations for improvement will in many cases be a disappointment to both physician and patient."

The various climates on this coast are largely if not entirely derived from the peculiar topography of the country or land, and contiguity to the waters of the Pacific Ocean which give a modifying influence to the weather

both summer and winter, far different from that found in any other portion of the earth. Even the world-wide reputation of the western shores of the Gulf of Genoa, the famous "*Riviera,*" of the old Italian travellers, does not compare with the climates that are to be found in California, either in the high Sierras, inland valleys, or within the many beautiful places along the shores of the ocean where spring reigns the year around: where the orange, the lemon, the fig grow side by side with the apple, the peach and the grape; where the geraniums, heliotrope and verbena flourish with the sweet odoriferous violet, the saucy pansy, native and exotic plants. Shrubs and trees of all kinds flourish equally well through the year where frost does not freeze nor heat burn.

The great and popular reputation of places and cities along the shores of the Northern Mediterranean Sea, in the past and present time, it would seem from appearances, will soon be transferred to this western coast; and California can, if she will, reap a greater reward in making herself known to the world as the world's great sanitarium than she can by her ripened fields of golden grain, her vast vineyards, her orchards, orange or lemon groves, the forests of her mountain tops, or the immense mineral deposits that lie hidden beneath the surface of her hills and canyons. To do this, she must do something for herself; and the subject indicated in this paper is one among the many that cannot be neglected or ignored in the grand computation of her many resources that go to make up her reputation and future greatness.

SUPPLEMENTAL REPORT ON INDIGENOUS BOTANY.

By G. F. BUCKNALL, M. D., San Francisco.

California has from the remotest times been known as a most varied and inviting field for explorers and botanists, who have revelled in a vegetation as widely different from that of the Eastern States or Europe as of that of the most remote regions of the globe.

The flora of California presents to those accustomed to the vegetation of other lands and climes many original and striking features, the trees, shrubs, plants, flowers and even the mosses, ferns, etc., while bearing a general resemblance to corresponding orders and genera elsewhere are here marked by strong individual peculiarities, and in many instances the flora exhibits examples wholly original, as in the case of the "Big Trees," (*sequoia gigantea*) which with some other remarkable trees, occur nowhere out of the State.

The flora of California, owing to its isolated position, is partly indigenous. Cut off from all parts of the world by the [illegible] on the west, and separated by [illegible] a succession of arid deserts from [illegible] has remained as [illegible]

whose province it is to extract and render applicable to the practice of medicine and the arts, the constituents of plants which can only be produced by skilled and patient experience and research.

The rapid growth of California vegetation is remarkable; the explorer is surprised to note, after a short absence, on revisiting a locality, that not only most kinds of flowering plants, during the time say of a few weeks, have ripened their seeds, but that many new plants have made their appearance. Luxuriance and rapidity of growth similar to tropical regions are noticeable in a marked degree, and the same rule seems to be illustrated in the growth of all, from the pine and lordly redwood of the forests to the cereals, grasses, ferns and the humblest weed of the gardens.

The early Spanish settlers of the Californias soon became acquainted with the virtues of various plants indigenous to the country, and which springing up profusely on the plains and in the valleys fringing the rivers and water courses, or thickly clothing the hill and mountain sides, diversified the landscape and offered a pleasing spectacle to the eye. These wild nature plants growing spontaneously furnished a vast Materia Medica only waiting to be gathered and appropriated for the alleviation and cure of the various ailments which afflict humanity even in this famous land.

Confirmed by soil and climate their original peculiarities have become so inherent in many species that they do not thrive in other lands and even refuse in some cases to grow at all; thus, *Lilium Washingtonia* and many seeds and young plants of California growth, have, in numerous instances, been tried in foreign soils, and though planted under the most favorable conditions have failed to fructify or take root, or, if they did begin to vegetate died soon after or maintained but a feeble and sickly existence. On the other hand a few of the California productions take kindly to their new homes and become even

more fruitful and vigorous then when growing in their native soil, while it is worthy of remark that almost every plant of foreign origin finds in some part of the State a soil, climate, and other natural conditions adapted to its constitutional requirements.

The distinctions and individual peculiarities of the divisions of our indigenous flora are sometimes so broadly marked and obvious as to strike the casual observer, while again they are so slight and difficult of detection as to be found only by careful scientific analysis. In some cases the differences pertain to the essential properties of the tree or plant, while again they relate to form, color, or other external characteristics.

In no other country is the range within which the products of the vegetable kingdom are capable of arriving at early and entire perfection, so broad as in California. Practically it may be said, in this particular to cover all the zones that belt the earth with climatic differences. In fact there is scarcely a cereal, fruit, plant or tree, wherever the place of nativity, that cannot be grown and matured in the open air in some parts of California.

It may not be found economical in many cases to attempt the culture of these products on an extended scale, nor can it be safely affirmed that they can be raised here as readily as in the countries to which they are indigenous, but simply that such is the variety of our soil and climate that a location can be found in some parts of the State where most any of the vegetable products of the world can be grown, or least as an experiment and a very large class of them with the greatest success.

[illegible]

Our streams are bordered with various deciduous trees and shrubs, while in the vast plains and prairie country of the valleys the prevailing plants are *gramineæ, compositæ, leguminosæ*, with a greater number of *liliaceæ* than in any part of the Eastern States; the proportion seems to hold until the foot hills of the Sierra Nevada are reached, when a greater variety of species as well as genera and classes are met with. Here the *gramineæ* diminish in number and the *cruciferæ* and *compositæ* greatly increase. Here also the *ranunculaceæ* and *geraniaceæ*, with numerous variously colored and brilliant *labiatæ* occur ; some of the mountain meadows, by the great variety of their flowering plants, out-vying in this respect, the carefully cultivated gardens of the East.

High land or low land, on the wide and fertile river bottoms, or in the almost impenetrable canyons or valleys of the mountain side, many new and strange shrubs and flowering plants tempt the tourist and explorer. Some present a succession of brilliant colored blossoms, perfuming the air in spring with rich oppressive odors, others charming by the deep green of their perennial foliage, while others later in the season rejoice in a multitude of lively colored berries.

Of late years it has been gratifying to note the increasing desire to learn the botanical history, peculiarities of growth, locality and time and method of collection, as well as to discover the medical effects and application to pharmacy of many plants, such vast numbers of which are indigenous to California.

The clearing of forests and the introduction of domestic animals have a tendency to displace most of the plants indigenous to our forests and open prairies. The advance of civilization and emigration crowd out the native plants, and introduces in their stead plants of different habits. It seems only to be a question of time for many of these to become nearly, if not entirely, extinct.

While, however, we think we stand in no fear of an

impending famine of native drugs, we may still draw a lesson from the ruthless destruction of the Cinchona forests of South America. In like manner the destruction of the Wild Cherry and the Black Walnut of the Eastern States is being thorough, and vastly more rapid, and still there does not appear to be any organized effort to replace them. The great law of supply and demand always will, as it always has, gradually settle the question as to the source and cost of any medicinal drug, in spite of latitude, altitude, barriers, isolation, soil and climate, devastation of forests and partial destruction and total extinction of native flora.

In California so rapid has been the destruction of the Cascara Sagrada Tree (*Rhamnus Purshiana*) that the "collectors" have been compelled to invade Oregon for a sufficient supply of the bark for Eastern and European markets, and while a score of years ago the bright yellow heads of some of the varieties of *Grindelia* could be recognized clothing the hills and lowlands with acres of color contrasting vividly with the green of the foliage, now the deep recesses of the upper valleys have to be searched for a sufficient supply of this well known drug. Want of space and time prevent more than a passing glance at some of the more important and best known of the medicinal plants of California. Four varieties of the *Rhamnus* family occur in California. Cascara Sagrada (*R. Purshiana*) is considered the most valuable of the later additions to our Materia Medica. Such vast quantities have been taken from the trees that the forests are pretty well cleared (as noted above) and the price in the Eastern markets is advancing.

The Eucalyptus tree although of comparatively recent importation from its native wilds (Australia), has become fully domesticated in California and thrives here exuberantly.

The *E. globulus*, or Australian Blue Gum, is the variety mostly grown in California and from which the leaves are

procured for medicinal use. The oil distilled from the fresh leaves is furnished in any desirable quantity and at a reasonable price. The fluid extract made from the fresh leaves furnishes a stable and convenient method of employing the remedy and fully represents the virtues of the drug.

The Yerba Santa, (*Eriodyction glutinosum*), a drug comparatively new to the Eastern States, has been long known to the country residents of California, by whom, in different parts of the State, it is known under the names of *gum weed, mountain balm* or *balsam, wild peach, bear's weed, etc.* It inhabits the Pacific Coast and is quite prevalent in California, being found mainly in the mountainous regions.

In the valleys of the Coast Range of mountains of California is found a sweet scented shrub known by the Spanish name of "Yerba Buena" (*Micromeria Douglassii*) in allusion to its beneficient curative properties; this is a vine creeping mostly upon the surface of the ground, or nestling in the underbrush of our redwood forests, and in its leaves, etc., bears a resemblance to the wild strawberry. Yerba Buena has been long known to the natives of California as possessing remedial virtues, and was in frequent use anterior to the occupation of the country by the Americans. When freshly gathered in the proper season it charms by its grateful perfume—aromatic and sweet—becoming when dried a strong scent, analagous to the mixture of the two odors of peppermint and camphor resembling the well known Pennyroyal of the Eastern States. Yerba Buena is a grateful aromatic, stimulant and tonic, and of considerable repute as an anthelmintic and carminative as well as anti-pyretic. One of the most familiar and also dreaded of our natural or wild plants is the well-known "Poison Oak" which occurs in the woods and thickets of California, as well as on the dry hill sides, in fact in almost every variety of location.

This plant is known to botanists as *Rhus diversiloba* or

Rhus toxicodendron, and is similar to the poison ivy of the Atlantic States, both in appearance and poisonous qualities. "Poison Oak" is the cause of a vast deal of suffering in California. Not only tourists and occasional visitors to the rural districts from our cities, but even farmers and laborers are liable to the inflammation and eruption caused by it. Nature, however, has supplied a remedy for this pest. We find growing throughout the State a tall, stout perennial plant belonging to the family of *Compositæ*, and called the *Grindelia robusta*. It is from one to three feet in height, and has bright yellow flowers in heads one or two inches in diameter, flowering from June to October. Before flowering, the unexpanded heads or buds secrete a quantity of resinous matter or viscid juice, white and sticky—that is, finally, after the flower expands—distributed like varnish over the petals of the flower. A cataplasm made of the bruised fresh tops of the plant applied directly to the inflamed surfaces will soon relieve the inflammation caused by the Poison Oak. A fluid extract made from the fresh plant is equally efficacious, and is also given with good effect in asthma, hay-fever, etc. The Manzanita, (*Arctostaphylos glauca*) by its bright green foliage and claret colored stem, early receives the notice of the stranger, and is familiar to most residents of the State. The leaves, which are the part containing the medical virtues of the plant, are astringent and tonic, with a specific direction to the urinary organs. They would, doubtless, prove useful as an antilithic, and cases have been reported of their having been extremely serviceable in gravel, acting, as they do, partly by direct action on the kidneys, and partly by giving tone to the digestive system.

[illegible] is one of the [illegible] the Pacific [illegible] [illegible] [illegible]

disorders, and the laxity of the system arising from undue exposure, over-exertion, anxieties, and is known to be a powerful tonic and alterative in syphilis and other kindred diseases.

Much could be offered concerning the *Rhamnaceæ*, the *Mahoniæ*, the *Grindeliæ*, the *Eriodyctiones*, the *Eucalypti*, the *Sapindaceæ*, the *Alni*, the *Quercitrones*, the *Abii*, and other trees and shrubs, the therapeutic virtues of various parts of which have already obtained a partial hearing from the medical world.

REPORT UPON

STATE MEDICINE AND PUBLIC HYGIENE.

By G. G. TYRRELL, M. D., Sacramento, Chairman.

In presenting a report upon State Medicine the chairman of your committee must be very brief. With a subject so extensive, its progress in the world of scientific thought so rapid, that to comprise all the advances that sanitary science has made within a very few years, would swell this report into a volume.

State medicine embracing as it does not only legal and preventive medicine, but as the late Dr. Wm. Stokes has so well said, the whole of sanitary science, has so unmistakably won for itself official recognition not only in the Old World but also in the New, that its claims as the medicine which will engross the attention of our profession in the future seem to be in a fair way of realization.

California as early as 1870 recognized the growing importance of providing scientific advice in matters appertaining to public health, and accordingly at the instigation and under the guidance of the late distinguished sanitarian, Dr. T. M. Logan, legally organized a State Board of Health, whose particular function it should be to take cognizance of the interests of life and health among the citizens generally, especially in the causation and prevention of disease, the recognition of sickness, the securing of more accurate determination of the causes of death, the number of births, the statistics of

marriage, the hygienic management of hospitals, prisons, asylums, and other public institutions, and to act as an advisory board to the State generally. This, by our young State, was a great advance upon the road to our sanitary welfare, and although the Board has not thus far been able to secure any further legislative action in the way of increasing its powers, or of making its executive action more perfect, yet we believe that the establishment of a State Board of Health has done an incalculable amount of good in the way of educating the public in matters conducive to its personal welfare, and in engaging the attention of the thinking classes to those questions of sanitary reform of which we stand in such absolute need. From this and other unmistakable signs of progression in sanitary science, we are convinced that many years will not have elapsed before this State will have adopted those advanced ideas of preventive medicine which have worked such a sanitary revolution in Europe.

Exposed as we are to the constantly threatening inroads of those infectious and contagious diseases which are endemic, and at times epidemic in Mexico and South America, the importation of which would be most disastrous to our country, not only in the sacrifice of human life, but in the destruction of its commercial prosperity, we naturally look to our Legislature for recognition of the paramount claims of preventive or State medicine as the one means by which protection can be afforded to our State in such emergency. Unfortunately for us our Legislators for several years back have not had the mental capacity to comprehend the necessity that existed for, or the value to be derived from preventive measures. They were of that class of men, who as far as sanitary knowledge was concerned, were perfectly, what the old Roman law would call, "*mente capti.*"

During the last session of the Legislature the same class of law-makers were largely in the majority; few of them, very few indeed, could realize the fact that vital

statistics were of any value to the welfare of a State, and when a bill was introduced making it a necessity that a certificate of vaccination should be produced prior to the admission of any pupil into the public schools of the State, one of the brilliant Senators from San Francisco moved that the enacting clause be stricken out which was promptly done. This incident is noted to exhibit in a striking manner the mental caliber of the men with whom preventive medicine had to struggle in the Legislative halls; men who cannot believe that science has produced other men who are willing to sacrifice their pecuniary profit that humanity may be benefited, or that a measure could or would be brought before them that did not convey a downright steal or personal consideration ; or who, if they could not discover either, for themselves or friends, would, without scruple, lay any such bill aside as unworthy of their consideration. Under these painful conditions State Medicine had no chance to have her voice heard within the walls of the State Capitol until disease came to the rescue. Small pox crossed the frontier and henceforward fear rendered an appeal to reason no longer necessary. A bill was drafted and passed unanimously granting the State Board of health ten thousand dollars to quarantine the State and prevent the spread of a disease already entered upon the work of destruction.

State Medicine, through its representatives, at once entered upon its mission, and through its efforts the disease up to the present time has been restricted to its original place of development. Public confidence has thus been restored and the cause of preventive medicine has been materially advanced. We have, however, a worse foe to contend with than smallpox, which is now threatening us along our southern border, and that is cholera. It is surely marching toward Panama—thence it will spread through Mexico and menace our health. The knowledge that we have acquired of this disease during its career in Europe, has confirmed one of the advan-

ces in sanitary knowledge, and that is that cholera is a preventable disease, and, by vigilant inspection, quarantine, isolation and thorough disinfection, can be denied entrance into our State. Of course the constant intercourse between the populous cities of the East and the Pacific, the wide extent of our southern border and the general disregard of all sanitation on the Mexican side renders an effective quarantine a most difficult, if not an impossible task. Yet we trust by increasing vigilance to prevent its inroad, and by urging, and, as far as our power will permit, enforcing perfect sanitation to arrest its progress should it unfortunately cross our frontier.

The non-contagious character of cholera being about definitely settled, and the dread of contact thereby being removed, we are much better prepared to prevent infection by sanitary measures directed by competent medical inspectors than we would have been in times past. The etiology of the disease is also nearer solution, and when its cause is positively discovered we may be placed in a position to put it in the same category of preventable diseases as small-pox. This will, if it occur, be another of the triumphs of State medicine.

One of the most essential objects of State medicine is the discovery of the causation of disease; this, coupled with the instruction of the public in those great principles of hygiene, which underlie the physical, and indeed, the moral well-being of the human family is exciting the attention of sanitarians throughout the civilized world, and stimulating investigation into those possible agents which might be engaged in the production of epidemic disease, and giving with praiseworthy unselfishness the result of their labors to the world. Thus we find within the past year that Mr. W. H. Power, of London, in conjunction with Dr. Klein, of the same city, has demonstrated in a remarkable manner the relation existing between scarlet fever and the diseased udders of cows, by tracing the milk supplied to certain families who were

attacked with scarlet fever to the source of supply. There, by a process of exclusion, he discovered certain cows that had an eruption upon their teats. By direct experiment with virus derived from these vesicles, inoculated into calves, he found that all the characteristic lesions of scarlet fever were produced. During the present winter Dr. Klein has examined the blood of scarlatina patients, at the Western Hospital, Fulham, England, with the result of finding in it a micrococcus identical as to growth and cultivation with that obtained from the cow's ulcers. He found further that on feeding mice with the micrococci found at Herndon on the cows, and Fulham in the human subject, the same pathological results were obtained. Cultures were then made from the blood of the mice which had perished from these inoculations, and these were found to contain the same micrococcus again. This again inoculated into calves developed the same lesions as found in calves inoculated with the original virus discovered at Herndon. Thus the circle was completed, and within it seems to lie a discovery of inestimable value in preventive medicine. If further experiments confirm the researches of Dr. Klein, we may be assured that the prevention of scarlet fever will become reduced to as much of a certainty as the prevention of small pox. In Natal, Cape of Good Hope, another worker in the field of sanitary science has announced a very ingenious supposition of the causation of enteric or typhoid fever. Natal has a European population of about 30,000; coolies, 25,000, and natives 350,000. The part of the country open to European settlement, not including the towns, is still very thinly inhabited, probably not exceeding one human being to every square mile. Doctor James E. Allen, of Pietermaritzburg, from whose brochure, entitled "Is enteric fever a cattle disease?" I am now quoting, says: "This particular part of the country is of special importance, because it is to it, that most attention must be directed, being the locality

in which latterly the fever has been most prevalent. The towns are excluded because it is not and never has been so general in them as it will be shown to have been in the open country. The Kaffir locations, where the natives principally live, must also be omitted because it is quite impossible under present circumstances to find out what diseases are prevalent among them."

Dr. Allen then proceeds to show that with such a sparse population spread over such a large extent of country, it would be impossible to maintain and spread a disease like enteric fever until the whole country was so poisoned by it that at certain seasons persons could not camp out upon the open veldt or plains with safety; a large percentage of those who did, being sure to contract the fever; and as the epidemics of typhoid fever which have from time to time broken out, have been among troops encamped upon the open plain away from centers of habitation rather than among the cities, the doctor comes to the conclusion that the fever is not entirely dependent upon human beings either for its generation or propagation, but that it has some extra human origin; that it is a disease of the rainy season, and therefore the infecting material does not gain access to the drinking water by subsoil infiltration, or contamination of the drinking water by simple fecal matter or specially contaminated fecal matter or by spontaneous evolution: that therefore the cause of the fever must be looked for on the surface of the earth and not in it; and that this infecting material is washed into the drinking water by the first rains, which fact accounts for the fever following the rains. After carefully weighing and dilating upon all previous theories of production, Dr. Allen comes to the final conclusion that from the widespread dissemination of enteric fever in a very sparsely settled country the disease is not of human origin but emanates from cattle, and those cattle, calves, who affected by a specific enteritis, scatter the germs of the disease

broadcast, which infected material, when the rains begin, is washed in the form of manure into the streams, and thus is conveyed the poison to man. Perhaps future observers may confirm this ingenious theory and thus give us the power to attack the cause of typhoid fever and prevent it. Dr. Lawrence, in an article in the Lancet for 1883, has written a paper upon the same subject, but claims that cattle manure, whether of cows or oxen, in certain conditions is capable of producing typhoid fever, and cites several cases in evidence of the fact. He believes that many outbreaks attributed to milk, originally arose from pollution of the milk by cattle manure or from mixture in the water used in diluting the milk, or from the emanations from the manure itself.

To the discoveries which Pasteur has communicated to the world I need not refer; they are part of the history of preventive medicine, and are destined to rank with the greatest discoveries of the nineteenth century. The experiments of Domingos Frere in Brazil and Carmonn in Mexico lead us to hope that yellow fever will no longer rank among those communicable diseases that baffle the sanitarian. Already it has been demonstrated in South America that yellow fever can be rendered comparatively harmless by inoculation, and when experimentation has, by the number of those experimented upon, clearly demonstrated its power to preserve, preventive medicine will have achieved a victory the result of which cannot be estimated. The diffusion of sanitary knowledge among the people by Boards of Health has resulted in the most marked improvement in the health of communities. Thus, according to the last report of the Registrar General of England, the death rate from zymotic or filth diseases had fallen from 4.15 per 1,000 in 1860–70, to 2.43 since 1880, and the mean annual death rate in London to 19.3 per 1,000. This result has been attained by teaching the people how to improve their dwellings, their water supply, their drainage and sewerage, the

necessity of personal cleanliness, correct living, and those other rules of hygiene which prolong life. In California the State Board of Health is endeavoring to follow the same course, and by disseminating information relating to the causes of disease of an epidemic or contagious character, and the means of prevention in cases of typhoid fever, diphtheria, and other diseases growing out of a disregard of sanitary laws, hopes to awaken an interest among the public for more knowledge upon matters concerning its health, especially upon the adulteration of foods and drinks, the commoner sources of household poisons, such as wall papers, copper vessels, tinned or canned fruits, vegetables, teas, coffee and spices. The fact that such matters are being inquired into much more than formerly is a promising sign, and due in a great measure to the aid and co-operation of the daily press in reprinting and diffusing the sanitary publications of the Board of Health which are written for the instruction of the public. To still further foster and promote state medicine, and give it an immovable hold upon the public mind, we must insist upon the introduction of elementary works upon hygiene into common school education. Every child should be taught the laws of health and how to observe them, especially those relating to correct habits, personal cleanliness, the destructive nature of alcohol, tobacco and other narcotics, upon the abstinence from which so much depends in promoting their health and future happiness. With such preliminary training the work of the sanitarian would be materially lessened, and the health of the community proportionately increased. Preventive medicine being the practice which will confer the greatest honor and distinction upon those who make themselves the most familiar with it, it becomes our duty in our respective spheres of practice to constitute ourselves practical sanitarians, and by constantly inculcating those precepts sanctioned by experience and observation which tend to preserve the health

of the community in which we live, to bring about that sense of security which perfect sanitation gives, that will enable us to meet disease boldly if it invade our borders, and take promptly such measures as will prevent the lodgment of any preventable disease in our midst. Especially should we take cognizance of our drinking water, as within its sparkling depths there can be hidden those poisonous germs whose admittance within our body may bring us within the shadowy folds of death. The principles of hygiene are now so well established that no excuse can be offered for our ignorance. The science of preventive medicine offers a large and attractive field for the exercise of our art, and as California is destined to be the greatest and most densely populated State in the American Union, it becomes us as a society to see that the medical profession are ready to welcome the strangers to a land that, incomparable in its natural attractions, is equally unrivalled in the perfection of its sanitary requirements and the consequent healthfulness of its inhabitants. This can only be done by co-operation and organization, and if you gentlemen, when you return to your respective homes in the mountains, or in the valleys, or by the sparkling sea, will see that your town authorities organize a Board of Health as the law requires, or if that is not possible, to insist on every town having at least a Health Officer, you will have accomplished the first step in sanitary reform. Your Health Officer must be a physician, a man of brains, and gifted with that energy which will make his work conspicuous. Let him be like a young man whom I am proud to call a friend, whom we [illegible] Los Angeles [illegible] with knowledge [illegible] that walketh in darkness [illegible] the value of [illegible]

[illegible] which he was situated were [illegible]

pervaded it, he inspected it from centre to circumference, searched out the hidden sources of defilement, called a meeting of the Supervisors, pointed out to them the danger in which they were, and the cause thereof, insisted on their appointing a Health Officer, with orders to have the town cleaned at any cost, consulted the principal of the Public Schools, counseled him to have all the attending children vaccinated, counseled the people to have their town swept and garnished, their outhouses clean and disinfected, their offal burned, and finally will place their town in such excellent sanitary condition that it may bid disease defiance. This is all the work of one man—an example of what a man of brains can do—a rising young physician, a graduate of the University of California, known to many of you; his name is H. J. Borde; he will make his mark in the medical history of this State, a credit to himself and a distinguished honor to the college from which he graduated. We might mention the names of other gentlemen, now in the employ of the State, and whose lessons in hygiene are doing good service in giving a knowledge of the necessities of sanitation wherever they travel. From these centres of sanitary training we expect great results, and trust that at the next meeting of the Legislature the people of the State of California will be so convinced of the benefit of State medicine, and the necessity of State sanitation, as part of the proper expenses of the government that no trouble will hereafter be experienced in passing those laws which are absolutely and essentially necessary for the promotion of the effective working of the State Board of Health. In the perfection of sanitation the condition of our civilization may be judged; in the progress of preventive medicine, we give assurance of health, happiness and prolongation of life. With a climate unrivalled, a race of people in its rising generation, unequalled for its physical basis upon which to found a race of centenarians, let us by undivided effort so train

the coming generation that hygiene, both general and domestic, will be so familiar and so regularly practiced that epidemic disease will be unknown, and that disease induced by personal habits will be so rare, that to study its features we will be obliged to travel beyond the borders of our State.

PREVENTIVE MEDICINE.

By M. M. CHIPMAN, M. D., San Francisco.

Members of the State Medical Society of California: Preventive medicine, as I understand it, is anything which prevents disease, retards its course, or lessens its prevalence; and it may consist of measures to arrest the spread of contagion or the generation of poisonous miasmata, or of the dissemination of knowledge to promote sanitary improvements, including dietetics and general hygiene.

According to history, Hippocrates was the first to perceive the advantage of proper diet regulation, in treatment of the sick; and his system of rules and directions, formed the basis of management therein, for many centuries, by those who possessed his writings and believed in the father of rational medicine; but during the long interval which has elapsed, vague and absurd notions have been entertained in regard to the nutrition of the sick in accordance with whatever chimerical theories of physiology and therapeutics might, at the time and locality, prevail. With the recent progress in medical science, the attention of learned and observant men has been directed to the importance of an appropriate dietetic system, which has resulted in the publication of several able and useful works on the subject; and it may be said that we have now entered upon an era in which the quality, quantity and adaptability of the nutrients supplied to patients, both in acute and in chronic diseases, are to receive due consideration as a matter of the first importance in connection with other therapeutic measures.

For many years, my attention has been specially directed to the influence of diet, with other personal care, in certain forms of chronic disease, and the maintaining of the body in a condition of comparative health and comfort, after a pronounced diathesis has become developed; and as it is only by the investigations and comparison of notes and views of many interested observers that the true science can be evolved, I herein propose to add something of the results of my own observations and studies, as a moiety to the general fund.

As by the ingestion of food, followed by digestion and assimilation, the body is developed and supported, whenever these fundamental processes are interfered with, by the organic or functional derangement of any part of the digestive apparatus, it becomes weakened from lack of nutrition, and thus subject to disease; and the product of imperfectly digested food, taken into the circulation, being rejected in the process of assimilation, if not duly excreted from the system, is deposited within or upon the organs as a substance foreign to the healthy tissues, obstructing their nutrition, and thus laying the foundation of a multitude of grave diseases.

To mal-assimilation is attributed much of the disease to which the human subject is heir; but it is evident that the mal-assimilation is usually dependent upon imperfect digestion; and I therefore frequently make use of the latter term where the former is usually applied. Imperfect digestion may arise from excessive nutrition and the indulgence in beverages and condiments which favor morbid changes; or it may be the result of the faulty performance of their functions by the digestive organs.

In the former case, the imperfect product results in gout or kindred disease, and in the latter condition, gout or arthritis, or other diseases in the same range may also be developed; and there is a liability to other classes of disease which find an easy access to the weakened system. The history of the old style gout is familiar to every

physician. J. Milner Fothergill, in his valuable work on dietetics, says that "Gout has a history of good eating, at some time, in the history of the individual or of the race;" and all writers on gout attribute the disease to heredity, and the name has an association of aristocracy, of good dinners and high living. This is true with reference to the people of Great Britain and of the continent of Europe, but in the more modern American civilization, the disease, although to some extent running in families, is yet not as constantly the result of inheritance, or even of extra good living on the part of the individual, as it formerly was in this country, and still is in the older countries, where the good living is limited to the wealthy and higher orders, and where a large proportion of the population are usually only able to procure vegetable and farinaceous food, and occasionally meat or other nitrogenous food, which latter forms but a small part of their subsistence. In the United States the abundance and low price of land and the better remuneration of labor, have given opportunities for the acquisition of property by a large proportion of the population, and meats being more plentiful and comparatively cheaper, these circumstances have caused its general consumption, and I think that I do not err in saying that there is more animal food consumed in the United States, per capita of the population, than elsewhere in the history of civilized nations, either in ancient or modern times. Our wealthy classes live and entertain in a style that corresponds with the nobility of Europe, and with the many recent inventions to add to the pleasures of the table, and the present facilities of obtaining the good things of all lands, our middle classes, to a great extent, not being deterred by social or political castes, follow the example of the wealthier, and if not making the same display of servitors, live practically, in the matter of food, as luxuriously as the foreign nobleman, albuminous food in more or less variety being served usually three times a

day, and rarely less than twice, and even employed laborers and servants having meats furnished them at two or three meals each day. The active out door laborer, whose lungs are well expanded by his muscular exercise, and his blood aerated in an atmosphere unburdened with the emanations of populous places, throws off the rapidly generated carbon, and it does him no harm, even if consuming more than a due proportion of the albuminoids, if he is not intemperate otherwise; but not so with the brain worker, the idler, and those who spend their time in the murky atmosphere of crowded rooms; and thus whilst we can truthfully claim that but a small per centage of our population suffer and are subject to disease from lack of nutritious food, we have on the other hand, by the very reason of our abundance and popular independence, multiplied many times the proportion of population who suffer from those diseases which in the Old World it is accounted the privilege only of the aristocracy to acquire and their descendants to inherit. And there is much truth in the assertion that we are getting to be a nation of dyspeptics, and gastritis, from being an unused term which the average citizen had to find in the dictionary for its definition, has become a familiar word; and our wealthy men, prominent citizens, men of note and influence, are becoming more liable to be cut off at the period of the first decline of their physical powers, in the midst of a career of activity and usefulness, from diseases originating from excessive nutrition, than they are likely to live to be gathered to their fathers in the fulness of years.

It is well understood, that, as a general rule, cases of repletion require depletion, but within my observation, the diet of gouty or arthritic patients under treatment, is not sufficiently restricted to accomplish the best results. An ordinary case of arthritic rheumatism, in which the digestive apparatus and the excretory organs are unimpaired, can usually [illegible] to health in a short time,

if the patient will consent to adopt the rigid and meagre diet best adapted to the condition. A robust subject, if allowed to eat only oat meal gruel or mush, toasted graham bread, baked potato, and sweet cream or a little butter, and to drink gruel, rice water, toast water or weak coffee, (the drinks preferably warm, and with only moderate administration of the salines used in such cases), will usually be about in a few days' time; and the patient will not get weak under the treatment, but will grow brighter and more free from pain, each day, as the soda urate deposits are being taken up and excreted. In an obstinate case, more active remedies may be required, and more time for recovery, and in such cases it may be necessary to permit the use of more nutritious food, yet, notwithstanding, diet restriction and diet regulation should always be one of the most important features in the treatment of diseases from this cause. When the system is continually supplied with nitrogenous food in repletion, the digestive organs become over-taxed, and the normal changes fail to be performed, and uric acid is produced in abnormal proportion and in excess of the capacity of the emunctories, which are restricted by the inflammation present in such conditions, and the acid, undergoing a slight change by the retention, is then deposited wherever the circumstances favor its enlodgement; the heads of the bones where the layer of soft tissue is thinner and comparatively denser than in other parts, thus leaving less opportunity for dilation of the capillaries for the passage of a solid substance, is a common situation of the deposit; but when the albuminoids are withheld, the blood becomes more fluid, its solvent property is increased, the emunctories are cleared out, and the soda urate obstructions are taken up and excreted, and the trouble is over.

Such patients may think that they are being starved, but there is less danger to persons of such habits and constitution, from the withholding of food, than from a final

breaking down by the blocking up of the avenues of nutrition, or the development of neoplasia, as the resultant outgrowth of over feeding.

It is evident that if the food ingested is in conformity with the requirements of the body, and not in excess of what is perfectly digested, that the blood will be properly constituted and assimilation without blemish; and in the class of cases above mentioned, some little restriction of the diet, with care never to partake of albuminous food in excess, and to eschew hurtful beverages, may be all that will be required to prevent the return of the arthritic trouble; but numerous are the cases in which it will be necessary to be still more abstemious in order to insure exemption.

Temporary derangements of the digestive organs are treated with great satisfaction, as the response is usually prompt and recovery soon follows, but chronic conditions of these organs are frequently troublesome to treat, and uncertain as to results, on account of the difficulty of making an exact diagnosis, and because in many old chronic cases, the lesions have become permanent. The digestive apparatus may be compared to a chemical laboratory, which, with a large range of chemicals and complete apparatus, is prepared to perform a great variety of work; but in case some of the chemicals are destroyed, and some parts of the apparatus broken, the work which can be performed becomes limited, until the deficiencies shall have been restored. But when in a case of gastritis, which has been long chronic, and in which the continuous inflammation, which is always present in persistent uricæmia, has caused partial degeneration of the glands, follicles, lacteals and villi of the digestive tract, and perhaps complete destruction of some parts of the minute organism, or the cells of the liver have undergone degenerative changes, unlike the defective laboratory, the degenerated digestive apparatus can never be restored to the full performance of its normal functions and there-

after its range of work must be confined to its limited capacity.

Such organs are easily irritated, and care is required, lest medicines prescribed prove injurious, and the medication should be directed not to attempts at restoration, but to keep the system unclogged, and in the best condition possible to perform its nutritive functions; and the regulation of the diet to that which is best adapted, with such aids to digestion, when required, as can be borne, are the principal features of the treatment indicated for that class of cases. If the mucous surfaces of the alimentary canal have become much impaired, almost any purgative will cause griping, and prove exhausting to the patient; and if there be a tendency to constipation, the diet should be managed, as far as possible, to obviate that difficulty. The saline aperients, when necessary to move the bowels, produce the best results; and in case the impaction is below the ileo-cecal valve, injections of water, a little warm, into which some glycerine soap has been rubbed, is an excellent expedient. I have known of a case in which for years this last method of evacuating the bowels was necessary, and was constantly practiced without any harm to the patient, but with apparent benefit. There are cases in which the duodenum or the jejunum has become clogged, in which some bitter tonic, solid extract of gentian being excellent, given immediately after a full meal, will cause an operation, give the desired relief and improve the tone of the organs, when the same remedy would not be tolerated on an empty stomach.

The brief article on food, in gastric affections, in Fothergill's work, is excellent, in most respects, but the variety of conditions in gastric affections, is very great, and every case, in some respects, requires a special dietary to itself; and I shall herein make suggestions of the management required, in some cases, which may not appear in conformity with Fothergill's instructions, but which should be regarded rather as additional, and for peeul-

iar conditions not provided for in his work. There are cases in which the excess of uric acid is so great, that the utmost care is necessary, as to the character and quality of the food, yet in which the stomach is strong enough to bear a considerable quantity of plain easily digested food, and in which experience has shown that the subject should eat sufficient at two meals for the day, or, at most, but a light lunch between the meals, so that the stomach may have time to become perfectly empty before each meal, as the contents of the stomach near the close of the digestive process, in such cases, becomes very acid; and if any remain it will quickly acidify the newly ingested food, and thereby intensify the morbid condition. Sometimes in chronic gastritis, the stomach is so irritable that very little of any alkaline corrective can be borne, and even as mild a remedy as bi-carbonate of soda has to be taken in quite weak solution; and any irritating insoluble substance, especially black pepper, will produce disastrous results; no acid substance can be ingested without immediate injury, and all sweets are hurtful; and all kinds of either spirituous, vinous or malt liquors will so speedily be changed to acid, that their use has to be interdicted, and milk also, from the same cause, instead of nourishing proves detrimental. Eggs are imperfectly digested and cheese quite indigestible in such cases; fruit, especially uncooked fruit, has to be discarded, as also pastry and jellies. In such cases, bread made of corn-meal, is not as wholesome as wheaten bread, as it undergoes the acid fermentation more readily. As a general rule, whatever increases the acidity of the stomach, or whatever is not easily digested, must be excluded from the dietary of such patients; the more easily digested dishes of meat and fish, perhaps including oysters and some other kinds of shell fish, eaten without condiments, and in limited quantity, wheaten bread, graham bread without sweetening usually preferable, preparations of oatmeal, a few of the more easily digested vegetables,

with the use of sweet cream and butter, being about the extent of what can be permitted with advantage. Tea may irritate the stomach and it develops more acid than coffee. The fluids taken may consist of hot water or weak unadulterated coffee, soups seasoned only with salt; and, perhaps, barley water, toast water or other bland drinks may be prepared. All fluids taken with meals should be warm, and cold water should never be drank, except after the meal has been digested, and the stomach has become empty, or nearly so, and iced water should be considered an abomination. This is restricting the gustatory pleasures to a narrow limit, but with that certain condition of the organs, it is necessary to successful treatment, and the patient will feel less the deprivation as he becomes accustomed to it; and with the required watchfulness and self-restraint, even with a very defective digestive laboratory, life may be sustained and comparative health enjoyed, with a good degree of mental vigor, and muscular strength for physical exertion. When practicable, out-door exercise is the best tonic for people in this condition.

In chronic gastritis, eructations from the stomach soon after eating, may exhibit but little acidity, but enough acid is furnished by the stomach and gastric juice, to set up the peculiar fermentation; and as digestion proceeds, the acidity increases, and when the greater part of the stomach's contents has been digested and absorbed, the residue has become intensely acid, so much so as to cause inflammation of the stomach and duodenum, which sometimes extends up the æsophagus, and may involve the pharynx and oral cavity, and downwards the extent of the entire canal. From this intensely acid residuum, it is evident that the greater part of the abnormal substance is absorbed, which is the foundation of so much of the disease, which emanates from this character of imperfect digestion.

In case of the development of arthritic rheumatism,

without precedent of high living or other hurtful indulgencies, and the arthritis is solely the sequence of impairment of the digestive organs, it may be more necessary than in sthenic cases, on account of the tolerance of but little medicine, that diet restriction be mainly depended upon for the clearing out of the calcareous deposits. The question of how to nourish the patient sufficiently, and still ward off attacks of arthritis, may become a matter for close observation. But very little animal food will be required if no wasting disease has been developed, and the patient's stomach is strong enough to enable him to partake of a considerable amount of wholesome vegetable food. In this the mistake is frequently made of not taking into account the less amount of nutriment in vegetable food, as compared to what is classed as albuminous, and the patient may lack nourishment because he does not eat enough of such as his stomach can fully digest, and is suited to his condition.

In June 1886, there was under my care, the case of an elderly gentleman with arthritic rheumatism, who was a subject of chronic gastritis, and whose long experience had made him intelligent in regard to his condition. He had been accustomed to dieting against attacks of rheumatism, and supposing that he had reduced his meat rations to the minimum, and still retain his flesh and muscular strength, was feeling discouraged that he should be attacked after, as he thought, exhausting his resource of defense. But, however, he consented to discontinue all food but the meager rations which I prescribe in such cases, and with the administration of a few small doses of Carlsbad Sprudel salt, he was over the attack within a week.

Subsequently, limiting his allowance of albuminous food to a small portion, either of fish or of one kind of easily digested meat, at his principal meal each day, and sometimes partaking of meat soup only, he has go on since with hardly a twinge of his old enemy; and he says

that he enjoys a breakfast of potatoes, graham bread, toast with butter and a cup of weak coffee better than he formerly did richer food, and his physical strength and mental vigor remain unimpaired by his enforced abstemiousness.

With less opportunities of observation with reference to the origin of abnormal deposits other than that which occasions anthritis, yet from what I have been able to learn my deductions are that the cause of the formation of calculi, either in the urinary bladder or in the gall bladder, or of the deposits about the joints, within the walls of the arteries, or in any or all situations within the body, is similar; and that the course of living and diet restriction, when necessary, which will obviate the development of gout, and the recurrence of attacks of that trouble, will also prove equally efficacious in difficulties arising from any of those mineral deposits, under whatever name or form.

Man is naturally so constituted that he can consume a great variety of food, or can subsist on a small number of almost any of the many articles which the earth produces for his support. An individual with unimpaired digestion can conform himself to almost any habit of life; can travel and eat among the lowly, or partake of the hospitalities of the opulent, and subsist on the national diet of almost any country, eating of whatever may be set before him, his appetite and convenience being the principal things to be consulted in matters of food; but with permanent impairment, is entailed perpetual care and watchfulness. No man but a millionaire can afford to keep a physician always near his person to watch over his habits and observe the effects of each meal or draught of fluid, and there are but few valetudinous people who have the care, patience and understanding in such matters to do so intelligently, to persevere in their observations, and to form rules of life in accordance therewith: hence, a great deal of suffering which might be avoided with such care and habits of self restraint.

Physiologists estimate the quantity and the proportion of each kind of food required for the daily consumption of a man in health and having free out-door exercise; but we find, by looking about, that there is a great variation from that standard, and that a large proportion of the numerous population, in many countries, who subsist almost entirely without animal food, perform constant and often severe labor; and there have been individuals and associations which have demonstrated that man can live and labor on a vegetable diet. Some of these would-be reformers hold to curious and impracticable theories, and succeed in exhibiting their lack of knowledge of physiology and the human constitution, but their experiments possess a certain value for their bearing on the question as to the effects of different methods and habits of life. There is no question but that a pretty good specimen of manhood can be reared and subsisted on vegetable food, but the aggregate of information on the subject proves that a certain proportion of animal food gives more strength of body and force of mind; and although the poorer classes of the Old World are unable to obtain their due proportion, yet that in the United States, the great prevalence of diseased conditions which are evidently the result of excessive nutrition, and the increasing tendency to such diseases, indicate that the proportion of albuminous food consumed by a large part of the population is greater than is consistent with the best condition of physical health and mental activity; although I believe that the increased consumption of sweets and confections, and the use of stimulating and deleterious condiments have a share in that peculiar deterioration of the health of the American people.

In the preceding statements and suggestions I have embraced but one set of functions, that by which the present life is sustained, and have said nothing of those functions by which life is increased and perpetuated. The uneducated in medical matters may not see what

connection the last mentioned functions have with digestion and assimilation, but the observing physician knows that all the important functions of the body are more or less interdependent through their mutual relations to the nervous system. Much less is known of the influence and results of the abuse and over-exercise of the reproductive functions than of the organs concerned in the nutritive processes, although of equal importance in human life; for difficult as it is to make observations of the latter processes in man, the difficulties of acquiring knowledge in regard to the processes of procreation are even greater.

It is a beneficient provision of nature that these processes should be private and sacred from public observation, yet the natural modesty, exaggerated by custom, causes, perhaps, an over-jealous guardianship of all approaches to the subject, as I cannot but think, that there should be ways provided and co-operation, to enable the earnest and well-aimed prosecution of the study of functions, of the greatest importance to the human family. But I do not propose here to discuss this subject, farther than to briefly state certain facts and deductions, the results of observation and study, as to the connection of abuse and over-exercise of the reproductive function, with many diseased conditions of the human subject.

It is well known that all mental exercise has its influence on the general organism, and especially that whatever affects the emotions, has a profound influence, either in exciting to increased activity, or in depressing the life functions; and the emotion of amativeness has an influence, peculiar to itself, which greatly affects the whole system. In a recent lecture on alcohol a learned professor, said as to its use and abuse: "It is difficult to know where to draw the line."

There is but one perfect rule for the exercise of the functions of life; but as in the use of the special stimulant, the difficulty lies in the comprehension of the details

of the rule, and in its application, under different circumstances.

That rule, in general statement is: Use the functions in just that manner and to that extent which, taking into account the present and the future, will produce the best results to the individual immediately concerned and to the community in which he lives, in benefits conferred and received, and in happiness enjoyed. Thus the functions of nutrition should be provided for and exercised in such manner as to promote the most perfect development of body, and to maintain the highest condition of health and of mental capacity; and the reproductive function should be devoted to the high purpose and in such manner as to rear up healthful and vigorous offspring to take the places of the present generation. All of animal life, created on a plane below the ruling species, not being endowed with faculties of thought and calculation, merely subsist, by and with the indulgence of the appetites and propensities, with no limit or restraint but gratification, supply and opportunity; but man possessed of the higher faculties is supposed to rule himself in accordance with reason and with reference to his higher position; but when he allows the appetites and dèsires to dominate the reasoning faculties to that extent, he retrogrades towards the lower animals, and we see blunted intellect, dwarfed reasoning powers, and absence of the finer affections and nobler aspirations, which are the distinctive attributes of true manhood. Whether developed from the lower orders of creation or not, he who reaches out toward them, as if to degrade his inherited dignity to the lower level, proves by the result, that man is not permitted to cast aside his estate, or in other words, to exchange his position for one of less responsibility; that he must, in some sense, continue to be a man or cease to be. Thus, when the functions of nutrition are indulged in excess of an assigned limit, the certain propitious product of the higher animal destructive assimilation ceases to be formed,

and that of a grade far inferior is substituted as if in direct rebuke of the prostitution; and the transgressor becomes subject to the penalties attached to the Divine command: "Thou shalt have no other gods before me:" and it is attested in the records of numerous volumes, how surely the abnormal product enforces the decree, by its visitations of suffering, unto the third and fourth generation, and by the abridgment of life, by its many forms of disease, of the multitudes of those who have lived not wisely, but too much under the dominion of the appetites.

The over indulgence and mismanagement of the reproductive function is the greater evil because of its hidden and unapproachable character. The diseased conditions which originate from specific infection, are an important factor in the aggregate of human suffering, but the morbid conditions originating otherwise, from unrestraint and misdirection, form the basis and adjunct, with other causes, of disease, the name under the various forms of which is legion; a catalogue of which would be incomplete without embracing nearly every chronic form, and as a developing cause of some of the acute forms. Gentlemen of experience, in certain lines of practice, know how profoundly this cause affects the nervous system, and how much contributes to the derangements of the nutritive function, and lowers the general vitality; and in establishing the uremic condition and the gouty diathesis, it is not infrequently, if not most frequently, a factor. I have observed that some of the late writers on diseases from this cause, refer to the ill effects of allowing the mind to dwell on the pleasures of the amative propensities in such cases, and the necessity that the patient direct the thoughts entirely to other things, as co-ordinative of the medical treatment. This is an indication of an awakening to the great importance of this most secret evil, so difficult to approach, or perhaps of acquired boldness to speak out in regard to it. Numerous are the cases in which complete restraint in all things is nearly all that

would be required for recovery; but to effect such restraint is frequently the most difficult part of the practice. Within the great nerve centre, by the act of thought, originates conditions which are the source of an immense amount of disease; and herein, together with the fact that such things lead to overt acts, by exciting the passions beyond control, lies the evil of what are considered the minor immoralities.

Studying nature by comparison, we see that the grain kernel, when planted, yields its substance to the new formation, and that the tuber parts with its most nutritious elements to nourish the growing plant; and so it is in animal life; reproduction is always at the expense of the vitality of the parents; and yet there is a large proportion of the people who appear to be ignorant or heedless of this fact; and that, farther, unlike the functions of nutrition, the purpose of the reproductive function in man is not intended to exist but for only a part of the life; not to commence until maturity shall have been attained, and with the female ceases with the first wane of the physical powers, and indulgence outside of that limit is a wanton waste of the life forces, and an invitation to disease; and that in order to protect herself in the survival of the fittest, nature has affixed the penalty of an excessive loss of vitality in the exercise of those functions by persons of impaired health and enfeebled constitution.

In the city of San Francisco are two associations, organized to war against vice and immorality. One of these is the Society for the Suppression of Vice, which includes among its members several of our wealthy and most influential citizens, and the other is the Association for the Promotion of Moral Education. The suppression of vice would confer an inestimable benefit upon the city, and to hold it in check is a necessity, and the aims of the society are most laudable; but the association to promote moral education has my most heartfelt sympathy, as I

believe that the great burden of vice which afflicts the world is the result of the ignorance of those who are its subjects, of their own nature; ignorance of the effects of the course which they pursue upon themselves and their associates; and although it is necessary to condemn the vicious with their vices, yet they should be regarded more in pity than with anger; and the only way to suppress vice and effectually do away with it, is by the dissemination of education in respect to those things. But all teaching is but assertive, and without making impression or carrying conviction, with the American habits of personal liberty and comparative independence of thought and opinion, unless the subject be expounded to the understanding and the reason convinced; and lessons in hygiene and morality cannot produce any great results, unless a knowledge of physiology be also conveyed, to enable the comprehension of the cause and effects of misdirection and evil practices.

The discovery, given to the world by Harvey, was the most important to the human race ever made in the domain of physical science; and medical science, since, has been steadily progressing, and rapidly for the last quarter of a century, there having arisen during that time many thorough students and persevering investigators, who have been constantly advancing the standard of discovery, inventing appliances and studying out improved therapeutic measures; but beyond the ranks of the medical profession, there has been no corresponding progress in that direction, only a small proportion, even of the members of other learned professions, acquiring sufficient knowledge of that part of medical science, the fundamental principles concerned in the every-day life, and which every educated man should understand to be of any special value.

It is true that physiology is taught in some of the schools, but with no means of inculcating a knowledge of anatomy, except the plates on the pages of the text book,

no opportunity of observing the organs or their relations, or of illustrating their functions, such pursuit of the study might be compared to the study of geography without maps or globes; uninteresting to the student, of almost no use whatever, as to theory, and of little valve, as to the facts acquired; and it is quite impossible, with such facilities, for the average student to acquire a general or practical knowledge of the science; and it is a fact that, outside of the medical profession, there are but few who know more, at this time, of the construction of the human body, and of the functions by which life is sustained, than was known in the days of Æsculapius. Taking advantage of the general lack of education in these matters, and the liberality of our institutions, quackery still prospers, and cunning and unblushing impudence, with no small proportion of the people, takes the place of learning, skill and attested ability. Taken together, the men who launch themselves upon the public, to practice the healing art, without having had opportunities of acquiring the science of medicine and of clinical instruction, and those who engage in the manufacture and vending of remedies to be used indiscriminately, without knowledge of their properties or fitness of application, combine an aggregate of ignorance, audacity, pretentiousness and recklessness of the consequences of their acts to others, hardly surpassed by any other element of population. Much of their business is criminal in its inception and fraudulent in methods; and yet this parasitic occupation is only partially held in check in some respects, and permitted to flourish without let or hindrance in other directions, whilst for offences of less magnitude, as against the morals and welfare of the people, the perpetrators are punished with prison incarceration and other due penalties. And as if to connect us more closely in these things, with the superstitions of the ancients, and the practices of the medicine men of modern barbarous tribes, a large number of clairvoyants and spiritualists

find support and profit in being the medium of supposed supernatural prescriptions, and so little in disfavor with the general public is all this variety of charlatanism, that I think none of those reflex exponents of popular opinion, the newspapers, feel themselves obliged to decline the advertisements of ordinary patent medicines, and some of them, and those too which aspire to the largest circulation, insert the long self-glorifying puffs of the most audacious quacks, the misleading advertisements of special remedies, and the cards of the clairvoyants and healing magnetizers; and with so little of rebuke or disapprobation from their patrons, that their greatest profit lies in thus being the agents of this wide dissemination of so much that is false, injurious and demoralizing.

Nothing so much shocks the public moral sense as the published accounts of gross immorality, especially the account of a death from criminal abortion, the doings of some miscreant who, perhaps, applies to himself or herself the name of the honorable profession which punishes with summary expulsion any one of its members who may so far forget his manhood and teachings as to be induced to engage in such nefarious practice. But these things are but the outcroppings of a vast amount of abortion and infanticide which never become known to the public, and an immense amount of crime, of different kinds, to attain the accomplishment of the animal gratification, and for the accumulation of pecuniary profit in connection with such indulgence; and a consuming deadly sea of immorality, hidden from all eyes but the actors themselves and their associates, who travel together in this downward road. All this is the outgrowth of ignorance of the functions of life and their purposes, and the results of wantonness on the part of those who thus prostitute this noblest attribute; from the child, whose innocent mind has been early corrupted by its unfortunate surroundings or evil associations, against which it was unfortified by parental instruction, to the

full developed roue or public courtesan; from the poor uneducated dweller in hovel or squalid cellar to him who has been given the higher literary course and resides in a ducal palace. All from ignorance, I repeat, as I cannot believe that any human being endowed with the ordinary faculties, if knowing the results of such courses, would be so reckless of his own welfare, or possessed of so much of the diabolical in disposition as to drag others with himself down to the abyss of degradation and misery. It is a fact that those who engage in producing criminal abortion are, so far as I have observed, without exception, persons with but a smattering of medical education, just enough to serve their wicked purposes, and to enable them to persuade unstable-minded women that such violence against the order of nature and the decrees of life will be permitted with physical impunity to the subject.

The Pilgrim Fathers, to escape deadly persecution, for conscience sake and their sentiments of religious freedom, fled to the wilderness of the New World, and there planted the tree of liberty, which has spread its branches over a broad domain, dedicated by the blood of our fathers, as "a refuge for the oppressed of all nations," where all have equal rights and protection, in the enjoyment of the fruits of their industry and of personal and religious liberty, and equal interest and encouragement in development and progress, in the cultivation of all the useful and nobler faculties. Will the nation perpetuate its divine heritage? Ancient history is but a narrative of the rise and fall of nations and of empires, the decadence resulting from the incompetency and corruption of the rulers, and the ignorance and enslavement of the people.

With more advanced civilization the modern nations of Europe appear to exhibit greater persistency in maintaining their national autonomy, but there has never been before this a country of great magnitude in which the

whole population, the rich and the poor, the educated and the ignorant, the virtuous and the vicious, were permitted equal participation in the affairs of the government, and this government is, therefore, but experimental. It is evident that its future must depend entirely on the degree of intelligence and integrity of the people. With universal suffrage there must be universal education, in the useful and solid branches and in virtue and sound principles. The savant and litterateur should be honored for their researches and acquirements, as leaders in progress, but what is required most among the people, is a knowledge of those practical things which impart understanding in the conduct and management of every-day life. It was a practice among old-style educators, as soon as the child had mastered the first elements of English, to give it the Latin grammar and reader, as the foundation of a liberal education, but I would have the child, whom it is designed shall be thoroughly educated, immediately after having learned the common branches, put into a class in physiology, with manikins and the dissection of animals; and thus I would have him to know the general principles of life at the commencement of his career, so that with his body properly cared for, and his mind fortified with the knowledge of good and evil, he would be prepared for future labor and usefulness.

In Luke's gospel it is related that when John, the Baptist, sent to ask Jesus if he really were the Christ, that the founder of Christianity, within the following hour, in the presence of the messengers, performed many miraculous cures of the diseases and infirmities of the people congregated about him, and then commanded them to return to John, and give an account of what they had seen, as evidence of his divine mission. In healing the sick, the followers of Æsculapius depend upon their acquired skill, in the performance of their important duties. Medical men have only one code of principles in

common, that which has been developed from the practice, association and teachings of the profession of the past; but whilst differing in sentiments and opinions in many other things, they are generally agreed as to the beauty and excellence of the moral code derived from the Hebrew and Christian scriptures; and as the prevention of disease is as beneficent as the curing of sickness, were religious teachers better prepared in that respect, they could more effectively co-operate with medical men, in their efforts for physical and sanitary reform, and therein follow more closely the example of the great teacher. A thorough knowledge of the principles of physiology, such as can only be acquired with a co-ordinate knowledge of anatomy, would enable the literary man, the hard-worked official or business man, and others whose position keeps the brain actively employed, without muscular labor, to understand the necessity of exercising the physical powers of the body, and thereby maintaining an equilibrium of the forces; to know what indulgencies over-stimulate the nerve force, and what cause over repletion and obstruction of the assimilating organs and of the emunctories; to perceive the symptoms of approaching disorder, and to correct the diet and habits, when necessary; to comprehend the full force and significance of the warning of their medical adviser, and to intelligently submit to his direction, and thus to conserve the health and vital forces, to avoid the crisis of condition which ushers in the sudden taking off, to know how to perform a full life's work, and to live on to the full period to which the original constitution had destined. This, and this only, is the measure which will arrest the increasing tendency to sudden and premature deaths in this country, among the opulent and brain-working classes from those diseases peculiar to their circumstances in life.

As there are ever developing new forms and new species of pests to increase the labor and tax the ingenuity of the husbandman, so with the human species; unknown

germs of disease and new manifestations are ever appearing to challenge the investigations and study of the physician, as if the very existence of man were a problem, and maintained only by perpetual warfare with the enemies of life. The wider dissemination of the knowledge of physiology and the laws of hygiene and sanitation, would strengthen his hands in the never ceasing contest; would lessen the difficulties of the practice of his profession by the more intelligent carrying out of his instructions in regard to his patients, and also in preventing the spread of transmissible diseases; would enable the people generally, to better appreciate his services, and add to the respect and confidence with which he would be regarded; whilst quackery, which always flourishes in proportion to the ignorance of the population, would die out from lack of employment and sustenance. Such species of education, in the saving truths of nature's unswerving laws, would be a chief factor in elevating the morals, preserving the health, and in increasing the happiness of the people: such light would tend to diminish the now fast recruiting army of the indigent and turbulent classes, to banish the demon of anarchy and discontent, and thus to disperse the only cloud in the horizon of the future of our country and our free institutions.

To the educator and the philanthropist, I would point this out as, at this time, the most promising field in which to engage his labor, or to appropriate of his abundance.

There should be established in the city of San Francisco, a college of veterinarianism, including the anatomy and physiology and the diseases and treatment of all domestic animals. I mention veterinarianism first because it might be best appreciated at the commencement and most patronized, and then I would add to it, the study of human physiology in connection with comparative anatomy, and a special course of chemistry and microscopy, in order to increase the number of investi- [illegible] ease in man and in animals.

But if such an institution cannot be established in this city at present, I would like to know that some one of the Universities of the State will initiate the movement by establishing a professorship, with full facilities for teaching in connection, the branches of comparative anatomy and human physiology.

THE SANITARY USES OF SALT WATER.

By JAMES F. SULLIVAN, M. D., San Francisco.

The introduction of sea water into the city, for sewer cleansing and other purposes, has frequently been advocated, but the subject has never received that serious consideration which it deserves. There can be no doubt that it would vastly improve the sanitary condition of the city, and it would seem to be incumbent upon medical men to aid in promoting a measure which would so plainly conduce to the welfare of the community.

As water is equally essential to human existence as the air we breathe, it should be freely and bountifully provided; and especially in large cities a plentiful supply, available at all times and for all purposes, becomes an absolute necessity.

Under ordinary circumstances the present supply of water for San Francisco, which is brought from the mountains a distance of from twenty to forty miles, may be sufficient for general and domestic uses; but emergencies are constantly arising which prove too plainly that the city is exposed to fatal epidemics and to disastrous fires from the want of an additional supply which, while it would permit the economizing of the mountain water for domestic purposes, would furnish water for other uses *in unlimited quantities*, sufficient to flush the sewers *daily*, to sprinkle the dusty streets, and thereby aid in purifying the foul air of the city.

Nature has placed at our disposal an inexhaustible supply of pure salt water, which can be had for the cost of

pumping, and it seems inconsistent and unreasonable that a city of 300,000 inhabitants should bring water from a long distance, at great expense, to flush the sewers, sprinkle streets, and extinguish conflagrations, while the Pacific Ocean ebbs and flows all around it.

The medical profession, who are the guardians of the public health, are all interested in the matter of municipal hygiene, for they know how the elements of disease are generated from filth, and lurk in the poisoned air of cities, awaiting only certain atmospheric conditions to develop an epidemic.

It is acknowledged that the sewerage system of this city is very defective, and that it performs the work of draining the refuse in a very imperfect manner. In addition to the faults of their construction, the means of cleansing the sewers are so futile and useless that they have never yet been properly cleaned or flushed. We remember that during a recent epidemic, in response to the demands of the press and public opinion, a large water-cart was made to empty its contents into a few of the sewer openings in a small portion of the city, but these feeble efforts only served to illustrate the utter impossibility of thoroughly flushing the sewers with our present limited water supply.

On account of the natural formation of a large portion of this city, especially South of Market street, sufficient incline or fall cannot be obtained to carry away the sewerage, and it requires considerable force to push it onward to its exit in the bay. As this force is never applied, except during very heavy rains, the foul mixture remains for a large portion of the year, to decompose and ferment in the pipes, as can be witnessed whenever the sewers are opened for repairs or otherwise, in any portion of that thickly inhabited district. This accounts for the great amount of sickness which prevails previous to the rains, and for the increased rate of mortality in the fall and early winter.

In a Report on a System of Sewerage for San Francisco by the City and County Surveyor, 1876, the author states that he "has carefully studied the systems of sewerage in London and Paris, as well as in the Eastern cities of the United States, and that the principle there insisted on is *that each day's sewerage of each street, and of each dwelling, should be removed from the city on the day of its production and before decomposition begins.*" Now it is evident that San Francisco is in far greater need of some means of flushing sewers than other cities in the East and in Europe where showers are frequent at all seasons, while here we have nearly six months of dry weather without a drop of rain.

All medical writers agree that the mephitic gases, which are constantly being generated by the decomposition of sewer filth, are a most insidious and dangerous source of air-poisoning. They penetrate the atmosphere in all directions, rising through the cess-pool gratings at every corner and entering every dwelling through bathroom and waste pipes, in defiance of the plumber's traps and other contrivances which are employed to prevent them. An English writer states (Appleton's Cyclopædia, article, Sewer) that in some parts of London "the effluvium from the ventilating holes in the pavement is very perceptible, and its effect is so decided that the butchers are obliged to avoid their vicinity, their meats soon becoming tainted in the foul atmosphere."

In the recent work of Parke's, on hygiene, the author describes the injurious effects of sewer gas on the human system, as follows: "When the air of sewers penetrates into houses, and especially into sleeping rooms, it certainly causes a greatly impaired state of health in adults as well as in children. They lose appetite, become pale and languid, are easily fatigued and depressed in spirits, so that it is evident the vital functions are imperfectly carried on." In this condition any proximate cause, such as a severe cold or bilious attack, will develop into

a fever; cases of pneumonia or other acute inflammations assume a typhoid character, and the patient speedily sinks into a low and dangerous state.

It is not necessary to accept the germ theory of the origin of disease to be convinced that most zymotic diseases are either directly caused, or greatly aggravated by the noxious effluvia which arise from bad drainage, whether in cities or in isolated locations in the country. Diphtheria and the eruptive fevers, especially scarlet fever and measles, frequently assume a malignant type, and are retarded in their cure, or hastened to a fatal termination from the same cause. Typhoid fever is now generally believed either to originate in decomposing sewage (Murchison,) or to be transmitted through sewers (Budd,) so that defective drainage may be said to be the *parent* or the *nurse* of that dreadful malady.

If it were not for the winds which prevail during the summer months, and purify our tainted atmosphere, the mortality in this city, especially among children, would be simply fearful. But, while the winds perform the friendly office of driving away unhealthy exhalations, they stir up the dust and drive it in clouds throughout the city till it becomes an intolerable nuisance. It is blown into our eyes, it grimes our faces and soils our clothing, it is inhaled with every breath, and may lay the foundation of catarrh, bronchitis or pulmonary consumption. Epidemics of influenza also originate from this cause.

The amount of water necessary to properly flush the sewers would be far greater than that required for all other purposes combined, but as the work has never yet been once thoroughly accomplished, the quantity which it would require cannot be exactly known. As the present length of sewer pipes is not half what it will be in a very few years, it follows that a greater amount of water will constantly be required to cleanse them; and as our

fresh water supply is now unequal to the task, the prospect for the future becomes very discouraging.

Fresh water suitable for drinking purposes, which has been brought from the mountains at great expense, is a precious and indispensable article in a great city; and as it can be retailed out to householders at high prices, it is not surprising that its managers should consider it too valuable to use for washing out the sewers, even though the public health should suffer.

There is one other reason why the city should not be allowed to depend alone upon water brought from the country without some accessory or supplemental supply from other sources, and that is the frequent occurrence of one or more dry seasons, during which our drinking water becomes lessened in quantity and greatly impaired in quality. During such periods the accumulation in the water of decaying organic matters, both animal and vegetable, is perceptible to the unaided eye. It would never become so foul, even in dry seasons, if it could be reserved for domestic uses only, and if an additional and independent supply were at hand to be used for all other purposes.

It would not be a difficult work of engineering to lay a separate system of water pipes throughout the city, construct reservoirs on one or more of the hills, and employ pumping works to keep them full of pure salt water from the Golden Gate or the Pacific Ocean. It would be no injustice to tax-payers to expend a moderate amount of money in protecting their families from disease and their property from fire, while such a course would increase the value of their property by insuring the safety and health of the city.

Sea water is itself a powerful disinfectant and purifier, as it contains chlorine in the form of the chlorides of soda, potash and magnesia, together with iodine, bromine and lime. If this antiseptic solution were distributed throughout the city by a proper system of pipes, the streets

could be sprinkled, the gutters flooded and the sewers flushed every day during the long dry season.

If this system of sewer cleansing is judiciously applied its effects will immediately appear in the decreased rate of mortality, grim Death, who lurks in our sewers, will be driven from his hiding place, those filthy drains, instead of propagating disease, will perform their proper duty of preventing it, and San Francisco will become the healthiest city in the Union.

Hence, it can be truly said that it appears extremely absurd for an intelligent community of three hundred thousand people to bring water forty miles to cleanse the sewers and extinguish conflagrations in their great wooden city which is surrounded by the sea, especially when that supply of mountain water is limited and unreliable. On the other hand, it is perfectly consistent with common sense to draw an unlimited supply of water from that source which nature has placed at our disposal, and whose quantity will never disappoint us in any emergency while the Pacific Ocean continues to roll its billows to our shores.

There are numerous other important advantages attending the introduction of salt water throughout a great city, among which would be the facility with which hospitals, private dwellings and hotels could be supplied with the means of salt-water bathing, itself a most valuable sanitary measure, and which would be of marked benefit to children and adults by preventing disease, as well as a useful curative agent for a large class of invalids. Public free baths could also be erected in different portions of the city where the water could be changed once or twice a day and used for flushing the sewers.

SUPPLEMENTAL REPORT ON

PUBLIC HYGIENE AND STATE MEDICINE.

By H. J. CRUMPTON, M. D. Saucelito.

Mr. President, Ladies and Gentlemen of the Society.

Regarding an appointment on so important a committee as a compliment, and a desire not to be considered a do-nothing, must be my excuses for presenting a brief *Supplemental Report,* giving a few familiar illustrations of existing evils, without taking up your time by proposing remedies, assuming that, our chairman, or other member of the committee, will present a paper, treating the whole subject in a manner worthy your favorable consideration.

With little or no co-operation from the general public, members of the profession are showing commendable zeal in spreading a knowledge of *Public Hygiene* and *Preventive Medicine.* Our fathers did little in this direction, their efforts being more for the relief of present suffering, without looking very far back for avoidable cause, though they were a noble band of self-sacrificing spirits always in advance of their surroundings, fairly successful, giving satisfaction as practitioners. We may infer this from the close feeling of friendship existing between his clientage and the family doctor—happy relations—perhaps not so general now as then. When death did occur from preventable cause the good people had a resigned way of attributing it to a dispensation of Providence, thus shielding the doctor from censure.

Although much has been accomplished in the improved sanitary surroundings of our people, a wonderful amount has been left undone.

As a place of recent and rapid growth, it is not surprising that the drainage system of this great city should be somewhat defective and require reconstruction; that there are certain sewers worse than useless for the purposes intended, or that the pestilence-breeding contents of others are allowed to accumulate for the want of sufficient water to clean them. As the same thing has been often referred to by others, perhaps it is presumption for an obscure country doctor to suggest that there is a limitless supply of water near at hand in the Bay, and that if sufficient of the people's money was used in the construction of powerful machinery to pump the necessary amount into reservoirs on the highest hills, to be distributed through the city, and used for flushing sewers, sprinkling streets, and washing away the concentrated nastiness of Chinatown, the results would be salutary indeed, and prove a splendid investment by reason of the improved health of the people. As at this meeting a paper will be read "On the Sanitary Uses of Salt Water," no doubt good suggestions will be made as to this valuable purifying agent when used for the purposes indicated.

Owing to the mildness of climate, with bright skies overhead most of the year, our people spend much time in the open air—a good thing to do under proper conditions; but where the young of both sexes, unattended by older friends, are permitted to go at will, of course some turn out badly from evil associations, drinking bad whisky, smoking villainous tobacco, and visiting opium joints, becoming morally depraved and physically degenerated, later to be a burden on the people as criminals or paupers.

In the country the case of a good old pioneer may be cited, who securing a squatter's claim on Government

land, selected as a site for his humble cottage a beautiful sunny slope with all natural surroundings of the best; the slops from the kitchen being thrown out at the back door, all human evacuations passed away from the dwelling, perhaps behind the barn—rather inelegant procedure—but so long as continued the family remained healthy, the children grew up strong and vigorous. But the squatter grew rich, the older children were sent away to boarding school and when they returned, had a good deal to say about the refined elegancies of modern life, and succeeded in persuading the old man to tear down the old house and in its stead build a handsome new one, with so-called modern improvements, among which must be reckoned a *water-closet within* the dwelling, from which and the kitchen in common, extended a wooden drainage pipe to a covered pit. The noxious gases generated from the contents of this pest-hole having no other outlet, secure ready exit through the wooden drain back into the elegant but ill-ventilated dwelling, to cause death, maybe, to some inmate, from diphtheria or similar ailment, which is not now charged to a Providential dispensation but perhaps to the alleged stupidity of the poor doctor.

The Digger Indians do things differently, as a visit to one of their *Rancherias* will show. All excrement and other offal of the camp is deposited near or within their miserable huts in part buried beneath the dirt floors. But there comes a time, living in so close contact with such accumulations, when instinct, on the breaking out of an epidemic, warns these ignorant creatures that a change must be made, when much of the outfit of the old camp is destroyed, and the whole village tranferred to a new site, and built up largely of new material. The civilized white man, with more local attachments and expensive, solid home comforts, cannot move with the same facility; hence the grave importance that his household should be placed under the best sanitary surroundings, and secured against self-inflicted calamity. To aid

him in so doing is a commendable mission, a thankless task though it may be. Such a work, touching so closely the dearest interests of social life, it is to be hoped will be appreciated by the general public before many years.

The ranks of the profession in this State are filled, to a great extent, by men and women of noble impulses, who excel in all the better attributes of human character. In my humble opinion such a body ought to be more of a power in the land, nearer the hearts of the people, have more influence in the ground-work of politics, in securing the election of the best men to make and execute laws, in educating, if you please, legislators as to their duties in supporting measures for the suppression of quackery, amplifying the powers of Boards of Health and the granting of liberal appropriations for the same and like bodies—all such expenditures being clearly in the interest and for the protection of the whole people. Thus, substantial aid may be given towards securing to California the distinction of being the sanitarium of the continent, and San Francisco the healthiest, because *cleanest*, of cities.

REPORT OF COMMITTEE ON

MICROSCOPY AND HISTOLOGY.

By ALBERT ABRAMS, M. D., San Francisco, Chairman.

Mr. President and Fellow Members: During the past year, as well as preceding ones, the progress manifested in micro-pathology has been especially confined to micro-organisms and their etiological relationship to disease, and the literature accumulated in consequence of these researches in *bacteriology*, necessitates the inauguration of a new era in the history of medicine. It has been and is customary for physicians engaged in the routine of daily practice, to whom is denied a methodical and intimate acquaintance with the truths of the microscope, to deny, aye to ridicule in their skepticism, any or all hypotheses relative to the germ theory of disease. No argument need be necessary to content this sophistry. The birth of the germ theory has not been spontaneous. Years of patient and laborious industry have been consumed by ardent scientists toward enabling us to rightly contemplate disease. Until now, standing upon the threshold of medicine, new and mighty revelations accost the eye of the enthusiastic votary to science, apprising him of unexplored regions, as yet beyond the domain of experimental inquiry. Whilst contending that the skeptical practitioner is in a measure unjustified in passing criticism upon bacteriological investigations, it cannot on the contrary be denied that enthusiasts in the realms of this as yet undeveloped field are apt in their zeal to arrive at

premature conclusions, and just as these conclusions have been unconditionally accepted by the scientific world, controversy is engendered, and the frail conclusion upon precarious premises is ruthlessly relegated to oblivion. The hasty enthusiast is, however, a more desirable and potent factor in the interests of science, than the skeptical and stoical practitioner. The former aids, the latter retards progress. There are at present comparatively few active workers in this new field, and the incalculable good resulting from a co-operation of the medical profession, can readily be conceived.

Bacteriology has not alone absorbed all recent progress made in medical microscopy. In clinical medicine the microscope still maintains its indomitable sway. The good clinicist must be a good microscopist. In view of the rapid strides made in clinical microscopy, the future of the microscope is assured, viz.: that, in importance, it will supplant all other physical means in safely and rapidly arriving at a correct diagnosis of disease. It is not our good fortune to bring to your notice any startling discovery made during the past year in bacteriology, for in this branch of knowledge results are only attained after a tedious process of investigation, and experimenters have become wary in thrusting immature conclusions on a now incredulous profession. Since last we met theories have been discussed, confirmed and exploded, and it is not our object to communicate such literature, much of which is based on improbability. We will in this communication devote ourselves exclusively to the subject of *Tuberculosis*, and learn how far we are justified in accepting the *Bacillus Tuberculosis* as a diagnostic criterion of the disease in question. Phthisis Pulmonum is brought about by processes anatomically and etiologically different; but we will restrict ourselves as far as is admissible to that form of destruction, the result of the *Bacillus Kochii*, and which we will call *Bacillary Phthisis*. In this way we exclude from consideration such destruc-

tive processes as are produced by degenerated tumors, syphilis, dust inhalations, (*Pneumonoconiosis*) etc. Phthisis seu Tuberculosis Pulmonum is a disease peculiarly the product of civilized society; indeed, its prevalence, might almost be a sufficient index in determining the degree of culture in any given community. A period in life propitious for the development of Phthisis, is between the ages of 15 and 35. A time when the "struggle for existence" is most manifest, leading to its ultimate sequence; "the survival of the fittest." According to that celebrated medical statistician, Hirsch, two-sevenths of all deaths can be attributed to Phthisis; and if chronic diseases alone be enumerated, then two-thirds of all deaths can be referred to the same cause. In 50 per cent. of all necroscopical examinations, pulmonary changes are met with that could, technically speaking, be included under the designation Phthisis. Truly, as some one has remarked, "in the long run everybody has a little tuberculosis." In discussing this disease, I do so from a standpoint fully in accord with modern pathology. Antiquated as the disease, and consequently the subject may appear, it nevertheless seriously menaces the longevity of mankind. I may be pardoned, then, in selecting for consideration a disease of such vital interest, and will avail myself of a few researches thereon in this report.

On the 24th of March, 1882, Robert Koch communicated to the "Physiological Society of Berlin," one of the most important diagnostic discoveries of the present age, i. e., the presence of the *bacillus tuberculosis* in the sputum of phthisical individuals. It would be but just to the memory of this truly great man to identify with his name the bacillus concerned in the etiology of Tuberculosis. This is the only modest tribute that a grateful science can pay to one almost worthy of apotheosis. Let us then continue to call it the *Bacillus Kochii*, notwithstanding it might conflict with the conservative views of those opposed to personal medical nomenclature. Having found the

factor productive of tuberculosis, it seemed but natural for scientists to engage themselves with a question more practical and vital in its bearings, viz: the curability of phthisis with agents directed toward a destruction of the bacilli. To antagonize a disease by a destruction of its cause seems excellent logic. Innumerable parasiticides have been vaunted for this purpose. They have been introduced into the animal economy in every conceivable manner. How efficacious these results may have been is as yet impossible to say, too little time having elapsed to enable us to appreciate the therapeutical value of Koch's discovery. This much is true, however, that the sanguine theorist has not fully realized his expectations, nor could we suppose he would. Take any accessible local tuberculosis, and how very often does it baffle the skill of the surgeon. Then how intractable would pulmonary tuberculosis prove, excluding all other conditions, when such is remote from medical interference. Physicians, in order to combat a disease seemingly hopeless, will not hesitate in going beyond the domain of reason in the suggestion of remedies for its cure or even amelioration. The bacterio-therapeutic method of Cantani (*Giornale Internazionale delle Scienze Mediche*, No. 6, 1885) might appropriately be consigned to this category of irrational medication. His method of treatment in cases of Phthisis is founded on the principle that certain forms of micro-organisms are antagonistic to each other and will not thrive when together in the same culture fluid. Carrying this principle to its therapeutical application, he seeks to introduce into the economy non-pathogenic microbes, which are inimical to the existence of the specific organisms. Cantani's method has been tried but the results have been unfavorable.

Nor has surgery hesitated in invading parts once sacred from the surgeon's knife. Hyperalimentation, pneumatic therapeutics, intra-pulmonary and tracheal injections of antiseptic solutions have all been tried with indifferent

results. Still another method has been struggling for recognition, and which at the present time is creating considerable agitation in France. This method consists in the rectal injection of gases for the cure of *tuberculosis.* (Correp. *Wiener Med. Presse* p. 27, 1887.)

A recourse to this method of treatment has been suggested in consequence of our inability to destroy the *bacilli* by the inhalation of various antiseptic solutions, the innocuousness of such medication being largely due to the difficulty of the inhaled substances attaining those remote parts of the lung inhabited by the bacilli. Bergeon sought to attack the latter by injections of gases into the rectum, basing his views on the well-known experiment of Claude Bernard, which was essentially this: that the *rectum* possessed the power of absorbing gases, which were then readily taken up by the Portal system, conveyed to the lungs and there eliminated. Were the injected dose too large then the arteries would likewise take up a part, and symptoms of intoxication would supervene. If, then, the necessary precautions are taken in the rectal introduction of gases, all portions of the pulmonary parenchyma will be brought into immediate contact with the same, and even toxic gases can be introduced with impunity.

After various experiments with antiseptic substances, Bergeon has confined himself solely to the use of sulphuretted mineral waters. After a brief use of this mode of rectal medication, improvement is rapidly manifested, asserting itself in chronic as well as acute cases. Other experimenters have corroborated the remarkable results attained by the author already cited. The successful results achieved by this method of treatment have been ascribed to the *carbonic acid* (*Societe de Therapeutique*, 24 Nov.) It would appear as if the latter theory were correct, inasmuch as Cavignis has found that a two per cent. aqueous solution of carbonic acid will absolutely nullify the virulence of tuberculous matter, and that a

1.25 per cent. solution mitigates its activity. The prophylaxis of Phthisis has, however, been measurably enhanced by Koch's discovery, emanating as it does, from a biological knowledge of the organisms. It has taught us that there are conditions favorable to the development and multiplication of these micro-vegetations, and that opposing these conditions limits in a measure the propagation of this affection. Indeed, all recent bacteriological investigations imply, that in prophylaxis, we possess the only rational means of combating disease. Preventive medicine will be the medicine of the future. Should the *anti-tuberculous* inoculation experiments of Cavignis, which are now being vigorously carried out, prove successful in rendering animals refractory to Tuberculosis, then Prophylactic medicine will have achieved another triumph. Will we ever succeed in curing Phthisis? Avoiding all reference to the future possibilities of medicine and adopting a pessimistic view, I will affirm that the curability of Phthisis is contrary to the law of nature. The history of Phthisis is almost co-eval with the origin of man. In the great cycle of evolution, connecting the supernaturalism of antiquity with the scientism of the nineteenth century, no material difference in its curability is apparent. It is through the mediumship of this affection that two-thirds of all deaths referable to chronic diseases is produced, and its unabated virulence portends no favorable omen. In the absence of epidemics it appears as if Phthisis were the disease selected, whereby disposition in obedience to the Malthusian doctrine is made of a surplus population.

There is an immutable law governing the supply of human beings to this earth. Such supply was never destined to be influenced by human calculation. It is, and always will be, regulated by means beyond the comprehension of human intellect. It requires no abstruse system of philosophy to appreciate this fact. The supply is evoked by the demand, which latter is created by the

mortality. Optimists might, on the other hand, aver that ample evidence can be adduced proving the curability of Phthisis. The dualistic hypothesis of Virchow regarding Phthisis is no longer tenable. The inoculation experiments of Villemin, Cohnheim and others, together with Koch's discovery, only tended more forcibly to establish the unity of phthisis and tuberculosis. The relation of caseous patches to tuberculosis has been firmly established, viz.: that local or general miliary tuberculosis can follow the inoculation of caseous material, and lead to what is termed secondary miliary tuberculosis. The theory that cheesy degeneration was the invariable product only of tuberculosis, was demonstrated by Virchow to be incorrect. Cheesy degeneration might emanate from inflammatory products of a non-tuberculous character. Admitting the latter proposition to be correct, then all persons in the course of their existence must have, at some time or other, tuberculosis, due to cheesy degeneration from inflammatory products, which when absorbed result in auto-infection. If tuberculosis were invariably of that progressive destructive character as is often manifested clinically, then all persons, as the preceding leads us to infer, would die of this disease. Such, however, is not the case. Local tuberculosis of any tissue is capable of undergoing metamorphosis which effectually limits any progressive tendency of the affection. It is evident, then, that phthisis is curable, but it yet remains for science to demonstrate how far the physician is responsible for the cure. We are apt to attribute the good results occurring in our phthisical patient to efficacious medication, thus arrogating to ourselves a right properly belonging to the inexplicable "vis medicatrix naturæ." To accumulate evidence of the curability of phthisis on purely clinical investigations is productive of many sources of error. Clinical, together with microscopical investigations, are alone capable of yielding results worthy of consideration. The evidence

thus adduced must, prior to acceptance, have been analyzed from a standpoint in accord with our modern doctrine of phthisis, viz.: the presence or absence of the Bacillus Kochii. If the latter examination be ignored, no matter how thorough all other physical means of diagnosis may have been, they go for naught when we aim at a correct diagnosis. It follows, then, that the clinical material used prior to the discovery of the *Bacillus Kochii*, in order to prove the curability of phthisis, can no longer be accepted. (System of Med. Pepper, vol. iii, p. 421.) The pathologist has ample opportunity of observing how destructive pulmonary processes have been arrested, whether by calcareous or fibrous metamorphosis, or even by absorption, proving the great restorative power of the vital forces. Having found pulmonary cicatrices, it would be erroneous, dogmatically, to assume that they are indicative only of tuberculous destruction.

Indeed their true nature can only be determined on, when an examination is made with special reference to the presence or absence of the bacilli. Thus, again, allowance must be made for much of the literature heretofore cited in corroboration of the curability of phthisis. Cases analyzed in a strictly scientific manner have recently been reported, excluding as they do the objections already cited. Notably among these is a case reported by Nauwerck, (*Deutsch. Med. Wochenschr*, 1883 N. 23) who found in a patient five years prior to death, symptoms, in both apices, of phthisis. The patient died of an intercurrent affection, and upon post-mortem examination the pulmonary apices were found to be occupied by cicatrices containing, in their interior, caseous patches with tubercle bacilli. There were no fresh broncho-pneumonic patches or even resorption tubercles in the lungs.

Another interesting feature connected with this case is, that four brothers of the patient had died of phthisis. In conclusion to the foregoing *pro et con* argument regarding the curability of Phthisis Pulmonalis, I have

not revoked my original thesis, nor reconciled myself completely to its truth. It would be well to occupy a position of neutrality, admitting on the one hand the clinical analogy of tubercles and tumors, denying on the other their anatomical similarity. A tubercle, like a tumor, may manifest its benignancy or malignancy, by a tendency to remain local or reproduce itself by metastases in contiguous or distant parts. If malignant tumors are curable so in the same sense is pulmonary tuberculosis, when the latter manifests a malignant character. Prior to the discovery of the *Bacillus Kochii* an important microscopical aid to the diagnosis of pulmonary phthisis was the detection in the sputum of elastic fibres. Indicating lung destruction, their importance was in no wise exaggerated when they were considered pathognomonic of the disease. The discovery of Koch however, proved too potent a diagnostic competitor for the elastic fibres, until now, they are partially if not wholly ignored in diagnosis. Desirous of learning to what extent diagnostic priority could be accorded the bacilli, I have examined the sputa of 25 phthisical individuals in the wards of the City and County Hospital in charge of Prof. J. O. Hirschfelder, to whom I am gratefully indebted for the use of clinical material. The fewness of the cases collected might detract from its completeness, but hope is entertained to elaborate the same at some future time. The morning sputum in the 25 cases represented in the annexed table was examined simultaneously for the bacilli and elastic fibres. The former were stained after Ehrlich's modification of Koch's method, the latter prepared according to the conventional method of Fenwick. Only one specimen according to each method was made, and purposely so, in order to determine which of the two [illegible] suggest itself to the practical physician as the more [illegible] certain means of arriving at a correct [illegible] the microscope.

No	Duration of Disease	Physical Signs.	Elastic Fibres.	Bacilli Kochii.
1	13 months	Well marked	Moderate quantity	Large numbers
2	4 months	Moderate	Small quantity	Absent
3	3 months	Well marked	Moderate quantity	Moderate numbers
4	6 months	Well marked	Small quantity	Few
5	2 years	Moderate	Small quantity	Absent
6	3 years	Slight	Moderate quantity	Large numbers
7	7 months	Well marked	Small quantity	Moderate numbers
8	8 months	Well marked	Moderate quantity	Absent
9	10 years	Well marked	Large quantity	Very few
10	3 years	Well marked	Moderate quantity	Few
11	1 year	Well marked	Moderate quantity	Absent
12	1½ years	Well marked	Moderate quantity	Few
13	3 months	Slight	Absent	Absent
14			Moderate quantity	Moderate
15		Well marked Gangræna Pulmonum	Absent	Large
16	2 months	Well marked Gangræna Pulmonum	Absent	Moderate
17	14 months	Well marked	Small quantity	Moderate
18	5 years	Well marked	Moderate quantity	Few
19	3 months	Well marked	Large quantity	Very few
20	5 years	Well marked	Large quantity	Very few
21	1 year	Slight	Moderate quantity	Large
22	2 years	Well marked Pneumothorax	Abundant	Very few
23	1 year	Moderate	Abundant	Very few
24	3 years	Well marked	Abundant	Moderate
25	2 years	Well marked	Abundant	Absent

From the preceding table we learn that the bacilli were absent in 6, *i. e.*, in 24 per cent. of all cases examined; the elastic fibres in 3, or 12 per cent. of all cases examined. We learn furthermore, that the quantity of elastic fibres, or number of the bacilli, bore no relation to the severity of the disease. That the quantity of elastic fibres and number of bacilli were in no wise proportionate. The semeiotic importance of finding the bacilli in the sputum is indicative of a destructive process of a bacillary nature, occurring not only in what is anatomically speaking the respiratory apparatus, but in parts adjacent. To be more explicit, what is termed the sputum repre-

sents not only the product of the bronchial, but of the nasal, oral, pharyngeal and laryngeal mucous membranes. We can not then peremptorily assert, that the presence of the bacilli in the sputa can indicate only a phthisical pulmonary process until we exclude the possible existence of tuberculosis in the other mucous membranes. Again, taking remote possibilities into consideration, we could readily understand how tuberculous bronchial glands (*Koch's Mitlh, d. k. Gesundheits amtes* II, p. 32) perforating a bronchus, or a tubercular empyema, would furthermore tend to disparage the certainty of identifying always the presence in the sputa of bacilli with pulmonary tubercular destruction. Still another possibility first suggested by Ziehl (*Deutsch. Med. Wochen.* 1882, p. 65) to the effect, that inhaled bacilli could appear in the sputa without the necessary co-existence of pulmonary destruction, seemed likely to jeopardize the diagnostic value of the bacilli. Nor did this conjecture in anyway conflict with reason. A micro-organism in its moist condition weighs only the ten billionth part of a milligram, (Naegeli, Di Niedern Pilze, Munchen, 1887.) Being so unconceivably light, they are easily diffused, and readily reproduce themselves after attaining so propitious a field as the respiratory apparatus. Contrary to the theoretical expectations of Ziehl, his view failed to receive practical corroboration. Whether the bacilli contained in exposed phthisical sputa are capable of being dislodged by atmospheric currents is affirmed by many competent experimentors.

Buchner (Ætiolog. d. Infections, Krank.) dissents from this view, and maintains that even strong air currents prove incapable of segregating bacteria from their respective fluids. This view is also entertained by so competent an observer as Ziegler. (Lehrbuch Path. Anat., vol. i, p. 313.) Authors have sought, by ingeniously constructed apparatus, and by methods absolutely free from technical error, to learn to what extent the bacilli

from tubercular patients are propagated in the surrounding atmosphere. Celli (Arch. per le Scienze Med. 1883, vol. vii, p. 233) examined the air in isolated rooms occupied by phthisical patients, likewise the expired air of such patients, for the specific bacilli, with only negative results. The same author, with specially constructed apparatus, allowed air to pass through tubercular sputa, eventually conducting the air thus passed through to vessels containing various culture fluids. Neither by microscopical examination or experiment were bacilli demonstrable. Bollinger, (Zur Ætiolog. d. Tuberk. 1883) desirous of studying the infectiousness of the atmosphere in rooms occupied by phthisical patients, selected such rooms among the poorer classes of Munich, where the laws of hygiene are particularly apt to be disregarded. In such rooms he exposed plates covered with glycerine, which in a little while contained some of the suspended atmospheric particles. The glycerine thus contaminated was, by intra-peritoneal inoculation, introduced into fifteen animals (rabbits and guinea pigs) without any appreciable effect. The negative results attained by the preceding authors conflict with the positive results achieved by Williams, (Lancet ii, 1883) who exposed object glasses covered with glycerine for five days in the ventilation tube of an hospital for consumptives. In this way he was enabled to detect the bacilli in large numbers. Experiments were conducted by myself with a like object in view. I allowed patients to exhale into ordinary glass cylinders containing cover glasses coated with egg albumen. The cover glasses were removed in twenty-four hours and stained after the usual manner. No bacilli were found in the expired air of twenty patients thus examined. Proceeding further I examined nearly twenty patients in one ward, in whom neither physical examination, or the subjective symptomatology indicated any possible phthisical taint. The morning sputa of these patients were carefully exam-

ined for the specific bacilli with negative results in all but three cases. In the three cases referred to the patients were all in close proximity to a phthisical individual in the final stages of the disease, who expectorated an immense quantity of sputa, very rich in bacilli. The sputa of the three patients contained no elastic fibres, and repeated subsequent examination failed to show bacilli. I am forced to conclude, after excluding any possible source of error in my "technique," that the presence of the specific bacillus in the sputum of the individuals already referred to was purely accidental. I am furthermore disposed to conclude, that in pronouncing a case, pulmonary tuberculosis, when the sputum of said case contains the bacilli, is fraught with extreme jeopardy under circumstances like the preceding, *i. e.*, when such examination is made in wards occupied by phthisical patients. In private practice where isolated cases are met with, then the presence of the bacilli in the sputum would prove a more positive clue to diagnosis. If the specific bacilli were found in the sputa of non-phthisical patients as referred to, and if the same were purely accidental, why then, did not the subsequent examinations reveal their presence, the patients in the meanwhile being palpably under the same conditions? I can readily surmise a skeptic framing a question after this manner. I would retort by citing the incompleteness of science. The physical and chemical conditions propitious to the dissemination of the bacilli are but little understood, and because we are unable to explain all things, we postulate knowing everything when we deny that which cannot be explained. Ample clinical evidence has been adduced demonstrating the infectiousness of phthisical sputa. That such infectiousness is dependent on the presence of the bacillus is the now generally accepted belief, but what appears paradoxical is the fact that experimental, contradicts clinical observation. It would seem evident that were the bacilli the active

media of infection, then according to the following experiment, their disengagement from the sputa would best follow: Sputa very rich in bacilli, from different patients, were evaporated, and the fluid obtained in evaporation was repeatedly examined for the bacilli with negative results in every case.

There are only a few authentic cases on record where the bacilli were found in the sputa of individuals in whom, on *post mortem* examination, their presence could not be accounted for by any tuberculous lesion in the respiratory apparatus. It must be conceded, however, that the accidental presence of the bacilli in the sputum is extremely rare, not so rare, perhaps, as we are taught to believe; but we have introduced the possibility, desirous of establishing the relative importance of the bacilli and elastic fibres as diagnostic criteria in cases of phthisis. It would seem hardly probable that the elastic fibres could occur as accidental ingredients in the sputa of healthy individuals, although I have made no observations in this regard enabling me to speak positively. As already remarked, the finding of the bacilli in the sputum does not necessarily carry with it the conviction of the existence of a purely pulmonary affection; the presence of the elastic fibres enables us to assert positively, on the other hand, that there *exists* a destructive pulmonary process. Another feature which materially interferes with the diagnostic value of the bacilli, is the fact that their presence in the sputum is not constant but intermittent. To exemplify, let us revert to our table: the bacilli were absent in six of the cases examined, notwithstanding subsequent examination revealed their presence in all.

This intermittent presence of the bacilli in the sputum has been attributed to one of two causes. Either the bronchus communicating with the seat of bacillary destruction has been occluded, or a temporary cure of the destructive process has occurred with retention of the

bacilli in the tissues. Microscopical investigations have repeatedly demonstrated that the bacilli can be retained for an indefinite length of time in the interior of caverns which have undergone cure. Gaffky (*Mittheil des Kaiser, Gesund. Amtes* ii, p. 130) mentions a case where the intermittent presence of the bacilli in the sputum was clearly illustrated. In this case, the sputum examined on the 2d of January contained bacilli. Daily staining of the sputum was then made until the 9th of March, without result, until on the latter day they were again found, disappearing entirely thereafter. Aside from the accepted reasons for their disappearance from the sputum, could not some chemical, or even physical condition, be involved? The disappearance of the specific bacilli in progressive cases of phthisis is extremely rare. Gaffky (l. c.) made 982 preparations from phthisical sputa, and found that in 44 cases, only, did the examination prove negative. We learned from the accumulated cases in our table that the elastic fibres were absent in only three cases, two of which were complicated by gangrene. The disappearance of elastic fibres from the sputa in cases of pulmonary gangrene first received explanation from Traube, who averred that in putrid fluids the elastic fibres are gradually dissolved. In the ordinary forms of pulmonary destruction the elastic fibres are only lost after a long while. If the bacilli disappear in the sputum from the causes already mentioned, *i. e.* occlusion of the bronchus or temporary cure, then likewise must the elastic fibres; for the same conditions influencing the bacilli must likewise influence them. There has been, however, one fact usually overlooked by clinicians in the examination of the sputum for bacilli. In the ordinary examination as conducted, any portion of the sputum is indiscriminately pressed between two cover glasses, and the specimen thus obtained is accepted as a criterion of the whole. Unfortunately there is no characteristic portion of the sputum

which might especially contain the bacilli, although observation has taught me that yellowish masses often appear in phthisical sputum containing the bacilli in large numbers.

Now, on the contrary with sputum containing elastic fibres we find in such sputum grayish white plugs, best seen on a black back ground, which are especially characteristic inasmuch as they usually contain the elastic fibres. Whereas, in the examination of the sputa for bacilli only a very small quantity is used; it must often follow that the organisms, although present, may not be contained in the small amount ordinarily used for examination. The elastic fibres on the contrary, however, can readily be discerned by one of two methods. The simpler method is this: let any portion of the sputum, preference being given to the grayish-white plugs, be put on an object glass to which is added a few drops of caustic potash solution. The addition of the latter fluid dissolves the cellular ingredients, allowing in consequence the elastic fibres to become conspicuous. The second method is that of Fenwick, which consists essentially of boiling the sputum with a variable amount of caustic potash solution, which effects the same purpose as mentioned in the first method. This latter method possesses two decided advantages, viz.; it enables us to estimate not only traces of elastic fibres but the entire quantity of the same in the sputum. If then, the latter method were resorted to for the examination of the bacilli, the same advantages would accrue. The bacilli are especially resistent to the action of caustic alkalies. Now, if the sputum supposed to contain bacilli be boiled according to Fenwick's method, then the sediment thus obtained could be available for staining purposes. I have resorted to this latter method, and although theoretically correct, practically it is useless. After resorting to this method for a length of time a recourse to the literature on the subject acquainted me with a method having the same object in view. This

method proposed by Pfeiffer (*Berlin. Klin. Wochenschr.*, 1883, p. 33) consists in mixing with the sputum a one-half per cent. solution of caustic potash, and allowing it to remain in contact with the same for one-half hour; in the resistent part the bacilli, if present, can be found. I have resorted to this method and find it of undoubted advantage in those cases where the bacilli are sparsely present in the sputum. I would, however, suggest a longer action of the caustic potash solution.

Another serious drawback for the practical physician is the difficulty of detecting the bacilli. True, the advances made for their detection since Koch's original method was introduced are apparent; it must nevertheless be conceded that even in this late day such skill is necessary, that only in the hands of microscopists are results attained with any degree of accuracy. The peculiarity possessed by the *Bacilli Kochii* in their behavior toward the various staining fluids, constitutes for them a distinct chemical reaction. The staining of the bacilli after the usual method heretofore pursued would seem to be of little value, provided the recent experiments of Bienstock (*Fortschritt, d. Medicin*, 1886, N. 6.) prove correct. Bienstock attributes the resistance of the smegma bacilli to the action of acids after being stained in consequence of their possessing a coating of fat. He found that many varieties of micro-organisms likewise show their resistance to the decolorizing effects of acids as do the syphilis and tubercle bacilli, after cultivation on butter gelatine. He concludes that the peculiar reaction of the tubercle bacilli to coloring fluids is due to the possession of a fat coating, which latter is derived from fats usually contained in the interior of pulmonary caverns. This author does not explain, however, why micro-organisms other than the specific bacilli contained in the same cavern react differently, although possessing the same opportunity of being covered with fat. The tide of scientific thought being

directed toward the etiology of infectious diseases, resulted in the discovery of other pathogenic organisms, which in their behavior to coloring bore a close similarity to the *Bacillus Kochii.* Lepra and lupus bacilli closely resemble those of tuberculosis, and Alvares and Tavel (*Prog. Medical,* Aug. 22, '85) have shown, that even in normal secretions there exists a bacillus which in many respects resembles that of tuberculosis. Particles of horny tissue such as epidermis, which are everywhere present and may constitute accidental ingredients of our specimens, stain like the bacilli of Koch. Voltolini, (*Centralbl. f. Allg. Med. No. 65*) in order to eliminate all possible errors from this source, recommends exposing the specimen to fuming *nitric* acid. This acid will develop, if Koch's bacilli are present, a chain of spores. Putting the specimen in acid is done prior to coloring, the subsequent procedures being similar to that as pursued in the ordinary method of staining. After this method, the bacilli retain their form perfectly, but their interior appears to contain a chain of spores. This appearance is thought, however, not to be due to veritable spores, but to an artificial coagulation.

Voltolini claims for his method that it is absolutely certain in detecting tubercle from other bacilli. The methods usually in vogue for the detection of the elastic fibres certainly demand no inordinate amount of skill. Nevertheless the fibres may often be confounded with various adventitious substances likely to appear in the specimen. The elastic fibres are homogeneous, glistening, sharply contoured, and are especially resistent to the action of caustic alkalies. In the field of vision they may be isolated, in bundles, or possess an alveolar arrangement. Many authors will accept this alveolar arrangement alone as indicating the presence of elastic fibres. If such were the case, then elastic fibres would be of no value in diagnosing pulmonary tuberculosis, for in this affection the alveolar arrangement is rarely met with. Any competent microscopist would be guilty of gross negligence were he to

confound the elastic fibres with other things, even though the latter be isolated. There is no staining fluid that will render the elastic fibres alone conspicuous. Experiments made with the various staining fluids convinced me of this fact. It has been claimed for the bacilli that they have been found in the initial hæmoptysis of phthisis, (*Deutsch Med. Wochenschr.*, 1882, No. 47) and in the sputa of patients who have coughed but a few days. In other words, they are the earliest diagnostic criteria in phthisis pulmonalis and at a time when the physical examination proves negative. That the elastic fibres can be found in the initial stages of phthisis with equal regularity, I am disposed to admit, although I can base no such assertion on extensive evidence, the cases found in the County Hospital usually being in an advanced stage of the disease. I have, however, in a few instances, found the elastic fibres in the sputa of individuals in whom a physical examination was negative. Although the lungs may be studded with tubercles prior to a breaking down of the same, no bacilli will be found in the sputum. The presence in the sputum of elastic fibres being likewise dependent on tissue destruction, it is safe to assume that the elastic fibres and bacilli are simultaneously present in the incipiency of the disease. True miliary tuberculosis and caseous pneumonia prior to destruction yield no sputa containing bacilli (*Berlin. Klin. Wochenschr.*, 1883, No. 15).

While the Bacilli Kochii are alone characteristic of tuberculosis, and when found in the sputa, signify a tubercular destruction in some part of the respiratory tract or region adjacent thereto, the elastic fibres are not characteristic of tuberculosis followed by destruction, but of other affections tending to the same end, such as abscess, carcinoma, actinomycosis, syphilis, etc. We hold, however, that the elastic fibres should be sought for with [illegible] earnestness as the bacilli, especially as the [illegible] more readily found than the latter. In con-

clusion, let us briefly refer to the latest theories held regarding the infectiousness of Phthisis Pulmonalis. Our first experimental knowledge of the infectiousness of Phthisis dates from the experiments of Villemin in 1865, who taught that inflammatory caseous products were infectious, and proved the correctness of his assertion by experimentally inducing the disease in animals by inoculation and trachael injection with phthisical sputa, the infection being manifested by an eruption of grayish transparent nodules, which are anatomically spoken of as miliary tubercles. A Neapolitan law still extant in 1783, made it obligatory to destroy by fire the wearing apparel of all deceased consumptives. In animals, experimental tuberculosis is readily induced. In the human family, however, its transmission from person to person does not occur with the frequency that theory would suggest. We learned in a previous part of this paper, that experiments have in the main proved negative in dislodging, under the most propitious conditions, the bacilli from the sputum; that in phthisical wards the bacilli are rarely detected in the atmosphere; that in the expired air of phthisical individuals no bacilli are demonstrable; that in healthy individuals incessantly breathing the air tainted by phthisical individuals, rarely are bacilli found in the sputum. Were the preceding theses incorrect, then the microbiotic theory of phthisis must be exploded. It is evident that were the bacilli not subject to the conditions as the foregoing experiments prove, then any one entering a phthisical ward, would render himself liable to infection; indeed, the unfortunate phthisical patient could only, by the strictest isolation, render himself safe to others. Although Williams found bacilli in the air of the wards of the hospitals for consumptives at Brompton, Dr. Edwards, its resident medical officer for seventeen years, reports: "That of fifty-nine resident medical assistants who lived in the hospital an average of six months each, only two are dead and these not from phthisis.

Three of the living are said to have phthisis." It is evident then, that the transmission of tuberculosis by inhalation is not fully sustained by observation.

Considerable agitation was created a few months ago by the demonstration of bacilli in the milk of cows affected with bovine tuberculosis. In tuberculosis of cattle (*Perlsucht*) bacilli are found, which are supposed to be identical with those found in human tuberculosis. It is well established that bovine tuberculosis is transmissible to pigs, cattle, sheep, monkeys, rodents, etc., by ingestion (*Deutsch. Zeitschr. f. Thierheil.*, 1883,) but it is yet to be demonstrated whether human beings can contract human tuberculosis by feeding on milk and flesh derived from tuberculous animals. The danger of infection would not only lie in the milk but in the flesh of cattle and other edible domesticated animals. The growth of the bacilli takes place only between 86 deg. F. and 105.8 deg. F. Cooking, undoubtedly, insures immunity against infection. Aufrecht's attempts at inoculating rabbits with cooked pearly masses proved unsuccessful, and Schottelius (*Virchow Archiv.*, 1883, XCI., 129) observes that the prolonged use of meat from cattle, affected with the pearly distemper, shows that after a period of years, no disease of the nature of tuberculosis occurred among the one hundred and thirty individuals included in the families concerned.

Jani (*Lancet*, 1886, p. 455) refers the genesis of hereditary tuberculosis to the sexual apparatus, basing his conclusion on the examination of the sexual organs of nine phthisical patients for bacilli. The bacilli were found in the testicles and prostate, although the former were in no wise pathologically altered. He also found them in the Fallopian tubes. The bacilli, according to Jani, infect the fœtus, either through the semen, or by passing into the womb from the abdominal cavity. The finding of the bacilli by Jani in normal testes would prove a valuable argument in maintaining that the

bacilli are in themselves innocuous; that they are attracted to the seat of tubercular degeneration, the latter forming but a favorable culture ground for their development. Cutaneous inoculation of tuberculosis has been successfully accomplished in monkeys, although its occurrence in man has always been the subject of doubt.

The great Laennec noticed, eight days after making an autopsy on a phthisical subject, the formation of a tubercle on his hand. For twenty years after, he enjoyed the best of health, dying eventually of phthisis. Hanot (*Archiv. de Physiologie*, Juli, 1886) has collected six cases, and Raymond (*France Med.* 1886, T. ii, No. 99–101) reports four new cases of cutaneous tubercular inoculation occurring in human beings. I can likewise contribute another instance of cutaneous tuberculous inoculation occurring in my own case. Not long ago, while engaged in making a necropsy on an individual having died of general miliary tuberculosis, I received an almost inappreciable wound on my finger. Notwithstanding suction and cauterization of the wound, there developed about twelve days after the receipt of the injury a papular elevation, which subsequently broke down, yielding a creamy purulent fluid. I examined the latter and found it to contain a few isolated specific bacilli. The ulcer resulting failed to yield to the ordinary treatment, and it was only after a thorough use of the curette by Dr. J. F. Morse, that a cure was accomplished.

If by this modest contribution I have in any way aided science, I shall be fully recompensed for any future inconvenience I may suffer. Indeed, prompted by a spirit of self-sacrifice, I was about to wish that something would arise, in order that I might enrich the literature of tuberculosis; but I would rather wait just a little while before convicting myself. In conclusion, let me refer to the importance of establishing a State Hospital for consumptives. The late lamented Dr. Henry Gibbons emphasized the necessity of such an institution in the inter-

ests of humanity. (*Transact. Cal. St. Med. Soc.*, 1878–79). More than ever does this matter now deserve our earnest consideration. Consumptives would then be isolated, as the microbiotic theory of phthisis demands; and they could likewise enjoy the climatological advantages possessed by California, were such an institution properly located.

REPORT OF THE

COMMITTEE ON MENTAL DISEASES, ETC.

By F. W. HATCH, M. D., Napa, Chairman.

It is my desire in venturing to present a paper on the wellworn subject of mental diseases to avoid anything of a controversial nature. Within the past few years you have had papers taking almost directly opposite views on the interesting question of the increase of insanity in the State. I will only touch upon that subject sufficiently to call your attention to some of the secondary or not so prominent causes of our over-crowded asylums, which may not have received the important attention they demand. I will also speak briefly of the cost of our asylums in comparison with others, of some of our drawbacks, and will add a few general remarks on the care of the insane. I do not present a systematic paper, but an irregular grouping together of such thoughts and facts as seemed worthy of your attention. In whatever way we argue as to whether or not the number who annually become insane is increasing, no one will deny that the number of persons who are classed as insane and have to be cared for in our asylums is year by year getting larger. There are now in our two State asylums 2950 patients, an increase of over 400 in the last two years and a half, and this increase has been steadily progressing for the last ten or more years, and may be expected to continue. In the last two years ending July 1st, 1886, there were admitted to the two "asylums" 1670 patients, an excess over the two years ending July 1st, 1884, of 185. Disregarding

entirely any theories of race, education, place of birth, or inherited tendencies, as causative factors, we will revert to the fact that a very large number are being committed to our asylums, and that our State will have to bear the burden of their care. In referring to some of the less prominent and less discussed causes of the gradually growing population of the insane, let us briefly glance at some of the different classes that are annually committed as insane, as it will aid us in pointing out some things not generally thought of. In these modern days the boundary lines of insanity have been so extended as to embrace within its limits forms of nervous disease, hypochondria, the broken-down, simple-minded, the eccentric, opium-eaters, the intemperate, broken-hearted and gloomy, the paralytic, the imbecile, the idiot, that in earlier days were not classed as insane and seldom committed to asylums.

Where formerly asylums received but few cases other than those openly maniacal, and those who were so demented as to be dependent entirely for support and direction upon others, now every shade and variety of nervous disease finds a place in the institution for the insane. Another cause of the increase of those who have to be cared for is the extended longevity of those afflicted in mind under the present modes of treatment and care. This lengthened term of life of the insane individual, while it cannot, perhaps, be directly estimated in years is a not unimportant factor in keeping our asylums filled to repletion. There is gradually growing an increased faith in asylums by the public, a feeling that relatives and friends will be kindly treated, safely cared for, and be offered that medical treatment that their disease may demand. The better travelling facilities and nearness of an asylum will also offer inducements for the committal of people who have, perhaps, long been kept at home. That the above mentioned circumstances do tend to increase the commitments to an asylum, I think there

is no doubt, and it is as far as I intend to go in discussing the causation of the large number who have to be cared for. An asylum or hospital for the insane fulfills two purposes, or should do so; it is a place where persons with diseased minds may be restored to a proper state of mental balance, and returned to their ordinary life, and it is a place for the safe keeping of persons, who by reason of diseased minds are dangerous to be at large, dangerous to themselves or others. Thus we find that in our institutious for the insane there are a great many persons who, originally sent there for cure, are now detained there for safe keeping alone—restoration to mental capacity no longer being hoped for. Roughly speaking, there are three groups or classes of cases that are sent to asylums:

First. The case of acute mania or melancholia and those cases of undoubted homicidal, suicidal or other dangerous tendencies which are manifestly unfit to be outside of an asylum.

Second. Those persons, who while of unsound mind, are apparently harmless, yet are the victims of delusions, and at times strange in action, speech and attire, and who have occasional outbursts of excitement from different causes. Under this head I would include many cases of simple monomania, a large number of the cases arising from intemperance, and the large army of the so-called cranks.

Third. A class that includes harmless cases of paralysis, of senile dementia, idiotic and imbecile children and epileptics of a non-dangerous character.

For the first class of cases an asylum for the majority is an absolute necessity. It offers for the acute cases perhaps the readiest means of care, and at the same time provides them with a home where they are safely protected from themselves, and prevented from doing injury to others. It protects society from the liability of harm from those who are at all times dangerous to be at large.

For the second class, while it offers the readiest and safest means of cure, it more frequently becomes a home for their safe-keeping and care, where many of them are obliged to remain during life.

For the third class, it becomes almost entirely a home, for in these cases of serious and long continued organic diseases of the brain and in those of original defective brain, or in the complete break down from age, treatment can do little to relieve, and the asylum is mainly a home where they can be kept free from the exposure and dangers of the outside world and in life and comfort. Our State Asylums are, to-day, filled with every variety of mental disease; cases that will recover and be restored to home and industry; cases that are hopeful, but in which no positive promises can be made; and cases that are the accumulation of years, of such a character that a restoration to mental capacity cannot, in all human probability, be made.

There if no question that the great majority of the patients now in our asylums are practically incurable and condemned, by virtue of their disease, to spend the remainder of their days in an institution supported by the State. In certain forms, and in its earlier stages, insanity is a curable disease, but in other forms, and in cases of long standing, a cure can not be hoped for. It is well within the bounds of reason, and according to my belief, a perfectly safe assertion to say that two-thirds of the patients now in our asylums are beyond any reasonable hope of recovery. In other words, two-thirds will remain with us and be a charge upon the bounty of the State. Do not misunderstand me to say that two-thirds of those we receive are condemned to remain in the asylums. What I wish to express is that we have a great number of unrecovered patients that have been years in accumulating, and that now these hopelessly insane are greatly in excess of the acute and more favorable cases received. As a general rule, the recoveries, deaths and

discharges from other causes will not equal the number received during any stated term, and there is accordingly a constant accumulation going on. With this state of things existing, it is self-evident that we have to look forward to a gradually increasing number of insane, and to make provision for their care. There are certain "asylums" that may have a larger proportion of recoveries than others from the class of cases admitted, but I refer in this paper to the average "State Asylum" that must receive everything committed to it. This gradual accumulation of chronic cases is seen not alone in California, but is pretty nearly universal. A glance at the cost of caring for the insane in this State will be instructive in this connection.

There are but few States that care for their insane at as small a cost as our own. The cost of maintaining a patient for the year ending June 30th, 1885, in the "Napa Asylum" was $142.90, in the "Stockton Asylum" for the same time, $149.75. Comparing the above with the cost in other States, I find that out of fifty-two "asylums," in at least twenty-three different States, there are but four asylums in which the cost was less than ours, and in the majority of them it was greatly in excess. I say this in no spirit of boasting, for I think an asylum can be run too cheaply. The figures are given simply to furnish you an idea of the actual cost of the care of the individual insane for a year.

During the year ending June 30th, 1886, the yearly cost has been still further reduced, notably so in the Stockton Asylum.

It will not be out of place to make some remarks as to the progress made in the treatment and care of the insane in recent years. The tendency of the day is to an amelioration of their condition, a desire to make their habitations and surroundings more comfortable and home-like, and all this with as large an amount of liberty and freedom from restraint as is compatible with the

safety of the individual and the public. To carry out the plan above outlined, a change in the style of buildings is advocated by some; detached cottages, or buildings where certain classes of cases may live free from association with other forms of disease or cases that might disturb them; unlocked doors, in some places, are part of this system. The system carries with it the careful study of each patient, of individualizing him, as it were, entering into his thoughts, gaining his confidence, and finally adapting the moral treatment to his particular requirements.

Employment, a skillfully directed occupation which will divert the mind and exercise the muscles, is considered to be a great desideratum in the treatment of nearly all cases of insanity, where the physical condition will permit of it. There is also a decided tendency fast being adopted to the almost total abolition of mechanical restraint; the straight-jacket, the muffs and straps are fast disappearing from many asylums. In the place of restraint is being substituted the more careful personal care of trained attendants, who study the disposition and endeavor to occupy the thoughts of those in their charge; the employment of the patients at some work congenial to them, the use of kind words, etc., etc.; but, above all, it demands the most close and unremitting attention, as well as forbearance, from those who have the direct charge and care of the patients. It has been demonstrated that it is possible to carry on an Asylum without even the occasional use of restraint, that is, mechanical restraint.

That there have been great advances made in the care of the insane in recent years can be safely affirmed, but it cannot be said so positively that there has been the same great advance made in the adaptation of remedies to the treatment of the diseased brain. Comparing our own State asylums with those of the older States, we find that ours are carried on at less expense, and in doing this

something must be sacrificed that could be had with a greater expenditure of money. The number of physicians allotted to each of our two asylums has been so limited as to make it a matter of surprise to Eastern Superintendents who visit us, and who are generally more numerously supplied with assistant physicians. The practical result of this scarcity of physicians is that it limits that amount of individval care and observation of patients, which is proper in any disease, and demanded in many cases of insanity. The work at our asylums is divided amongst so few physicians that the routine daily duties take so much time that there is comparatively little opportunity left for study, observation, or note taking. Three physicians to fourteen hundred patients is not what it ought to be, yet that is what it is. The last Legislature gave Napa an extra physician, making four in all, but the Stockton asylum failed to get the same relief, though it asked for it. Perhaps our dietary tables are not as varied as those in asylums run at a greater expense, nor our clothing as fine and numerous in its garments, but we do the best we can in feeding and clothing with the means at our command. The system of non-restraint in its fullest sense has not yet been adopted in California; indeed, in the present crowded condition of our two asylums it would be impossible to carry it out. For a long time it has been impossible for us to classify our patients, and non-restraint forces classification.

Mechanical restraint, though still used among us, is year by year being gradually reduced, and its use or abuse being more carefully guarded against. .Our patients enjoy as much liberty as is given in almost any asylum, and employment is largely used both as a means of diverting the mind and as a curative measure. Without taking any roseate view of the subject, I can safely say that our insane are well and comfortably cared for, reasonably well-fed and clothed, and given such profes-

sional care and attention as would tend to promote their comfort and recovery.

There are improvements in every branch of life to be had for money. With more money we can feed better and give better clothing, and with an appropriation to build infirmaries for the sick, we can give them better care and diet and remove them from the annoyance and anxieties incident to being sick in a ward with many insane patients. These changes cannot be made without an increase of appropriations, already large, and an increase of the per capita cost.

I have before remarked that our asylums are largely filled up with chronic cases for which there is no reasonable hope of recovery. In caring for this class of cases, economy in buildings, machinery and attendance can be practiced, and yet the patients be made as comfortable as in an institution more expensively run. In the acute case, where there is a prospect of recovery, let every possible provision be made for suitable buildings; let there be an abundance of trained nurses, and that individual care which the case demands. The common sense of our people would say on this subject, "Cure all that are curable at any cost; maintain the incurable in life and comfort, according to the reasonable requirements of each individual, at as low a cost to the tax-payers and with as little costly machinery as possible."

REPORT ON MEDICAL EDUCATION.

By W. S. WHITWELL, M. D., San Francisco, Chairman.

I have the honor of presenting to you the report on Medical Education.

As I understand my duty, I am not called upon to give you my ideas on this subject, but to direct your attention to those points which during the past year have contributed to the retardation or advancement of medical education, and consequently to the injury or to the good of the laity and the profession.

For the past ten years a great deal of thought has been given by earnest men to the best means of raising the standard of medical education, which at one time was very low. By the endeavors of these men, every succeeding year has witnessed an advancement; one which has been sufficient to encourage the workers, although oftentimes not sufficient to silence the talkers who are wont to compare our new schools with those of foreign countries, which have been established for hundreds of years.

Where were they after an existence of fifty years? and very few schools in this country have reached even that respectable age. How high was their standard at the end of even their second century of existence?

Let those who complain remember that in the development of a vast country it is not always possible to devote the entire energies to the preparing of medical men. It has been necessary first to get a living from the soil, whether we were sick or well. The highly educated doctor is a luxury which can only be enjoyed at a later

period. It has also been necessary to teach the rudiments of education to the crowds of densely ignorant who have flocked to our shores from those very countries of highly developed medical institutions.

To those who are dissatisfied and sneer at the elementary conditions of our medical schools as compared with those they have known abroad, I would say, what the country, what the people demand, that will they have. If they ask for little, they will get little.

If the people are given too much in the way of medical legislation, they will be dissatisfied and cast accusations, which you cannot prove to them untrue.

Strict laws in relation to medical education were enacted in the early history of this country. What was the consequence? They became dead letters, and for their trouble the medical profession were told that they were trying to rule out, for their own advantage, men who were their equals. The time came when both laity and the profession demanded protection from incompetent men who in many instances had bought their diplomas, and for the past ten years the standard of education has been steadily improving. Even if our schools are not what they might be, many students have profited by their teachings and become eminent, practical and observant physicians, who although they may not know the strict pathology of disease, do know how to relieve and give comfort to their patients.

Another point is forgotten in comparing, especially the German system of education, with our own. A few men among the Germans on a certain branch of medicine, and sometimes, gentlemen, it is only on a very small twig, are most highly educated, scientific and experienced. They obtain a hospital position. Their work is wholly devoted to this branch for years. They hold this position to the exclusion of others. This plan is good for the few; it is advantageous for science, but I do not

believe that the general standard of education is as high as when a greater number are allowed to reach these very advantageous hospital appointments. As an instance, take the Woman's Hospital in New York. If for the past twenty-five years a mere half-dozen assistants, *internes*, had been allowed to hold their positions in the hospital, would the teachings of Sims, Emmet, Peaslee and Thomas, the founders of gynecology, have been so widely spread in every State of the Union as they are to-day? Instead of half a dozen, forty practitioners, at least, have had the advantage of practical experience in the wards and operating room.

As an American, I believe in American institutions and in their future, and while recognizing and gladly availing myself when opportunity offers of the advantages of foreign study, and fully conscious of the shortcomings of our own schools and methods, I do not like to hear, especially from Americans, disparaging reports on the educational methods in America to the laudation of everything foreign. Schools abroad have not been, nor are they, perfect. In a late address on medical education, Prof. Gamgee, F. R. S., said that in the present requirements of the London College of Surgeons, he recognized a material change for the better, as compared with what was deemed sufficient only ten years back. Many could recall the "forty-five minutes examinations" at Lincoln's Inn Fields, which, with literal truth it used to be said, could be passed by any intelligent London cabman after a six weeks' cram. One of the bitter faults found with American schools is that the teaching power has not been disassociated from the licensing power. And yet it is only since the year 1858 that in England these two powers have been separated.

In former times, when the country was poor and sparsely settled, and a medical education was hard to obtain, and doctors were sadly needed, slight requirements and a short curriculum were perfectly proper.

Now that the profession is crowded, there being a doctor to every six hundred people in the United States, it is time to increase the difficulties of entering and those of graduating to a marked degree, and thus gradually to purge the ranks, of the incompetent.

Each year witnesses an improvement in these respects, and nothing has been more potent towards affecting this object than medical legislation. I do not wish to infringe upon the rights of those who are to report on the subject, but medical education and medical legislation are most closely associated. It is by this means that a more uniform standard of requirements will be attained throughout the States. If one State has an effective medical law which prevents those from practicing who do not attain a necessary degree of proficiency, others are forced to follow. Example is a spur, but the crowd of incompetents and quacks with which the neighboring States are saddled, is a far more effective spur to like legislation. They are forced to protect themselves. Thus will the laws of a few states leaven the whole loaf.

The Illinois State Board of Health has quite lately established a standard of minimum requirements, entitling a college to be held in "good standing;" in other words, the diploma of a medical school which demands less than the established standard is not recognized, and a physician holding such a diploma is not allowed to practice in Illinois without passing an examination before the State Board. Such a law cannot fail to aid in dispersing the incompetents, and at the same time it forces on medical colleges which have a low schedule of requirements, the alternative of either raising their requirements or of having their diplomas ignored. The former is by far the pleasanter. Thus has the schedule of minimum requirements had a tendency to secure a recognized standard of professional attainments. It was necessary to begin low in fixing the requirements, but now the Board have the making of the minimum higher, under consideration.

The Secretary says that it is not high enough, but that this can be said for it, it has been successfully enforced for the past three years, and has been applied to all schools of medicine.

Following the example set by Illinois, Iowa, Missouri, and Minnesota, neighboring States, you will notice, have framed like laws, and in consequence of the action taken, greater educational requirements are demanded of matriculates and graduates of medical schools throughout the United States, and to-day twenty-four colleges practically require four years' study, and fifty-eight others have made provisions for such a course. These facts I gather from a pamphlet issued by the Illinois State Board of Health, entitled: "Medical Education and Medical Colleges." As showing the value of higher requirements, the Secretary, Dr. John H. Rauch took the pains to follow the career of seven hundred and eighty-nine out of one thousand physicians, who studied four years and attended three terms before graduating. These, he says, are with few exceptions successful and prominent practitioners in the different communities in which they reside. He comes to the following conclusions:

First. That the best interests of the public welfare demand the highest attainable standard of educational qualifications, skill and ability, as well as of professional and personal honor, integrity and morality, among those engaged in the practice of medicine.

Second. That it is the duty of the State to exercise the authority it possesses for the protection and promotion of the public welfare, to secure such standard.

Third. That uniform laws, exacting of everyone aspiring to practice medicine, proof of personal fitness and professional competency, would prove the most potent agency in improving the standard of medical education, and in enhancing the dignity and usefulness of the medical profession.

While awaiting the realization of these desiderata,

the actual advances and improvements which are being made from year to year, are full of promise and encouragement for the future. The Secretary, Dr. Rauch, further says, "Through the growing sentiment in the medical profession in favor of a higher standard of education and qualifications, and which sentiment has already found expression in the enactment of medical practice laws and the enforcement of stricter requirements for admission to its ranks, and aided by this increasing provision of means and facilities for study, investigation, observation and research, the competition between medical schools is gradually being divested of its commercial features. A higher plane of development has been entered upon, and in the struggle for existence on this plane the 'commercial manufacturing establishments' are at a disadvantage, which will compel their reform or hasten their extinction." In the Report of Institutions which follows, it is shown that of all the two hundred and fifty-two named in the report, one hundred and twenty-three are now extinct, there remaining one hundred and twenty-nine in existence.

The schedule of minimum requirements which is a test in Illinois of the good standing of a medical college, is being complied with to a rapidly increasing extent. When the first report was made there were only forty-five colleges which exacted an educational requirement as a condition of matriculation, now there are one hundred and fourteen. Attendance on three or more lecture courses are now demanded by forty-one, while heretofore the number was only twenty-two. Hygiene and medical jurisprudence are now taught in one hundred and ten, against forty-two and sixty-one respectively heretofore. The lecture terms have been increased. Who can say the era of improvement is not setting in and the effects becoming apparent to all observers? What has been done in this State I leave for the Committee on Legislation to tell you.

Let me call your attention for the moment to what Dr. Henry D. Didama, of Syracuse, has to say on the subject of medical education, in an annual address delivered before the New York State Medical Association, as long ago as November 18th, 1884. His address is entitled Conservative Medical Progress.

He urges that the old method of education which allows a medical student to attend all the lectures which are given the first year, is radically wrong—it is confusing and disheartening to the student, and is unfair to him. He urges the adoption of a graded course which encourages the student to build a firm foundation before he attempts to reach the upper stories of his education. He compares the graded system with the old, and likens it to the building of a house. "You prepare the plan, lay the foundations broad and strong, carry up the superstructure carefully and gradually, put on the roof and finish the rooms honestly without veneer or graining. You do not jumble all together, working an hour on the turret, another on the trench for the cellar walls, and still another on the window sills and hard finish and joists and rafters."

"The old system and the new. *In one case,* no preliminary examination; only two short courses of lectures required, the second identical with the first; the novice required to attend lectures on every subject every day, to the neglect of preliminary work; no examinations to advance to higher grades, for there are no grades; a final examination so superficial as to be little better than a farce."

"*In the other case* preliminary examinations which require a certain, even if insufficient preparation; three years of training at the college, the novice beginning at the beginning; his capability and progress tested by frequent oral and written examinations; his advance checked from grade to grade if his fitness be not established; searching yearly examinations; and a final exam-

ination, which although of great severity, does not, except in rare instances, result in rejection, because the student has been educated in a way which accords with nature and does not violate it."

Toward this latter system all earnest instructors are working, and within a few years we hope to see it very generally adopted.

Let me also direct the attention of those interested in the educating of men for the profession of medicine, to a paper which Dr. Charles H. May has put in print for the use of his "Quiz" classes, "Method in Medical Study."

He deplores the fact that many graduates from reputable colleges are unable to speak or write grammatically.

From letters recently received from graduates in medicine in relation to instruction in quizzes, he clips the following, "I except your terms," and another spells terms "tearms." "I have did more studying."

He also is an advocate of the graded system, and advises the student to construct one himself even if the school does not require it. He speaks of the advantages of recitations, attendance at which should be compulsory. If this system were carried out, quiz classes would not be necessary.

Another important paper is that of a Regent of the University of the State of New York, Dr. William H. Watson, which has been published during the past year. He advocates the separation of the power to teach and the power to license. I will not test your patience longer, but advise those who have not read Dr. John S. Billings' address before the British Medical Association, to do so. If he has done nothing more, I, for one, thank him for his defense of American medical schools. He explains why our schools are not as yet on a par with those abroad.

In writing to the *Lancet*, Dr. H. W. Jones, an American resident of England says, "while we must confess to much that was questionable in the past, it appears at present that the case of medical education in the United

States is hardly put with fairness. As the effete doctrines of the early church yet serve as the sceptic's best weapons, so now do the allegations which I hear rehearsed, rise against the " American system."

I should be derelict in my duty were I not also to ask you to read the annual address of Dr. R. M. Hodges, on the subject of Modern Medicine—a most scholarly production. His remarks on medical education are well worthy of attention, and had I the time I should quote from them at length.

Already my report is long enough, and I can only beg that you will all take encouragement from them concerning the future of American Medical Education.

REPORT OF COMMITTEE ON PRIZE ESSAY.

Mr. President, your Committee on "Prize Essays" presents the following report:

The object this Society had in offering a "prize" for the best original essay upon some medical subject was to stimulate the medical thought to make more careful inquiries about the progress of medicine as an art and science, and to ascertain the best methods to prevent disease and relieve human suffering.

There is no condition in life more pitiable than that of an uneducated member of the medical profession, for the advantages in all branches of medical learning—as histology, microscopy, therapeutics and pathology are so far in advance of the teachings of half a century ago that there is no longer excuse for a lack of professional attainments and a reasonable knowledge of all the departments of medicine.

There comes to the intelligent mind the eloquence of the mystery and secret operations of nature, as observed in the proliferation of brain-cells and connective tissues as new fields of science are entered and new methods discovered in the treatment of disease.

At the close of the nineteenth century we are living in an age of progression, far surpassing all other periods of time, and should be prepared to meet the progressive demands of the growing intelligence of the people.

While our convictions may favor the theory of evolution, we must not content ourselves with the belief that something can be evolved from nothing, or that we can become familiar with all modern discoveries, or assist in

developing medical thought, without making any individual effort.

Strange as it may appear to some, there must be a coordination between cause and effect—between the forces of mind that direct and the labors performed.

To utilize the present opportunities for the purpose of advancing medical science should be the highest ambition of the physician, and a little encouragement should be presented to him to distinguish himself in medicine, and at the same time do the world a lasting good, and for this purpose a prize is offered by this Society, as a stimulus for more diligent labors.

New discoveries gladden the heart with thrilling pleasures, and every medical society should encourage the writing of prize essays, as such labor leads to a higher standard of medical learning and lessens the prospects of "successful quackery," which now receives the endorsement of a large portion of the public press and the weak-minded; and if we wish to crowd out quackery we must crowd in more learned men into the profession, that the success in operative surgery, and the private as well as the hospital clinics shall mark the distinction between the quack and the educated physician.

The reward of recognition among the profession for ability, skill and learning far outweighs the value of a bank check for $100, which is offered for an "essay," but the latter is a tangible proposition, and partially pays for the time employed in writing, and the younger members of the profession cannot possibly find a portion of their time more profitably and delightfully occupied than it would be while writing upon some particular subject connected with medicine.

For the purpose of giving the contest for the "reward" a more definite encouragement, your committee has thought it would be well to name a subject to be written upon, and have selected, or would suggest that this Society select that of "erethism or hyperesthesia" that

peculiarly phenomenal condition in which one appears to be surrounded by an aura or force—the embodiment of an intelligence—which watches over the individual with a jealous care, and causes the party to manifest the greatest distress as one approaches near the body. Time could be most agreeably and profitably spent while writing upon this subject, and more knowledge be gained upon the psychic forces and moral influence of the physician in the sick chamber, as well as a more accurate knowledge be obtained of the etiology of a variety of cases of temporary mental alienation, which would enable us to determine with some degree of certainty whether they were dependent upon reflex or concentric nervous irritation as witnessed in some uterine troubles, or were caused by increased disturbances of the functions of the nerves of inhibition, free from specific lesions of the brain. In conclusion we would recommend the Society at its annual sessions to name the subject for "prize" competition.

Respectfully submitted,

WASHINGTON AYER.
C. N. ELLINWOOD.
R. F. ROONEY.
P. WHEELER.
H. VOELLER.
Committe on Prize Essay.

REPORT ON GYNECOLOGY.

H. M. RUCKER, M. D., Merced, Chairman.

The preparation of a report to be presented to a society of medical ladies and gentlemen, directly pertaining to any subject of the profession, is a difficult task. This is so because of the difficulties in the way of making such report interesting or profitable. The various subjects have been so carefully investigated, so repeatedly discussed and written up, that it is not an easy matter to suggest anything new.

Honored by you, Mr. President, with the appointment of chairman of the Committee on Gynecology, and as duty requires that a report should be made, I will not offer further apology.

That flexions and versions of the womb have been the bug-bear and opprobrium of the profession, we have only to observe the almost innumerable varieties of pessaries to be convinced.

Almost every conceivable shape and kind have been offered, with special claims as to their utility, and have nearly as often been rejected as inadequate to the end they are intended to subserve.

It seems gynecologists are burdened with the impression that fame never wreaths the brow of this particular specialist until after he has labored with and brought forth a pessary or a speculum.

The modern pessary is a wonder. It truly abounds in sides, angles and parts that completely dwarf the forty-

seventh problem of Euclid. As to hard or soft, you take your choice.

The lucky horse-shoe, ever since the days of the renowned Hodge, has been among the collection. We have the bow, ball and galvanic; the cup and the stem; the lever and wedge; the hinged, springed, ringed and winged; the ball and the dumb-bell; the kind you blow up, and the kind that will unexpectedly collapse, the kind that has cost the weary inventor more days of solicitude and experiment than he has, perhaps, ever received blessings from the incredulous brother or sister who practically tests their usefulness. The word incredulous is used purposely to indicate a state of doubt consequent upon repeated personal failure.

In all seriousness we boldly assert, that pessaries in the hands of the young and moderately experienced practitioner are in the main useless, and may be productive of much harm. To those whose experience has been gained by devotion to this branch of the profession, and who are possessed of mechanical skill and ingenuity, the pessary may become quite an aid in the correction of malpositions of the womb. To such a one the need of a pessary may at once be apparent, and out of a well selected stock one may be shaped to meet the demands of the particular case.

* "I have seen the inside of an immense number of vaginas, and I never saw two that were in all particulars exactly alike. They are as different from each other as are our faces and noses." This was the language of the immortal Sims. An observation of this kind from a man of such eminent attainment, means much, and goes far in proof of the difficulties attending the use of pessaries.

† Dr. T. A. Emmet is responsible for saying, that "a pessary is of little use in merely altering the direction of

* Sims' Uterine Surgery, page, 265.
† Medical Record, September 11th, 1886, page 2[illegible].

he uterine axis; if it corrects a prolapsus it is doing real service, but not else." We are to regard this as an honest acknowledgment after an extended and varied experience.

There can be no question that flexions and versions have occupied the professional mind far beyond what their importance demands, and the present array of pessaries has and will continue to be responsible for it.

It is not strange that the young practitioner as he branches forth upon his professional career should think that this endless variety of pessaries was not made in vain. It is also not strange that when he is called upon to treat a womb long distorted by recurrent attacks of pelvic inflammation, which have resulted in adhesions, indurations, and hyperplasias, that for want of better judgment he is prone to attack it with the ever ready pessary, and as is too often the case bring discredit upon himself and a calamity to his patient.

To a man possessed of the abilities, patience, perseverance, and mechanical ingenuity of Hodge, the pessary may become a useful factor in the relief afforded to suffering women, but there are such innumerable conditions restricting or wholly forbidding their use, that more inexperienced and less dexterous members of the profession should venture cautiously. Let such content themselves with shoring up the womb with medicated cotton, or better, with marine lint, until such time when added experience may enable them, like Sims, to observe wherein one vagina may differ from another; then, and not till then, will the rising gynecologist be able to make a judicious application of the pessary.

In this connection a word as to the merit of marine lint or refined oakum, will not be out of place to those members of the Society who may not have given it a trial. As a means of support to prolapsed ovaries and uterus it is so far superior to cotton, there is no comparison. Unlike cotton it does not become matted together, and in addi-

tion to its wonderful antiseptic qualities, it is capable of receiving almost any kind of medication. When it is used for support, it is not well to use it dry, as it may cause irritation, but when moistened with glycerine it becomes as soft and non-irritating as cotton, and in addition to retaining the shape in which it is placed in the vagina, it may be allowed to remain a longer time before removal.

Patients suffering from prolapsed ovaries and uterus, with all the accompanying back-aches, feeling of weight in the pelvis, and tenesmus, will be more certainly relieved by frequently assuming the knee-breast posture devised by Prof. C. F. Campbell, of Georgia, than by all the pessaries that were ever invented, in the hands of those who are not experts in using them.

I have many times thought the lamented Dr. Sims did not weigh well his remark, when he said: "We should never send our patient off till she is taught to remove and replace the 'pessary' with the same facility that she would put on and take off an old slipper." While I respect the memory of the author of these words as one of America's greatest sons, yet this assertion in reference to pessaries in general is a most extravagant one. There are many women who could never be taught to introduce the Hodge instrument properly, or with any degree of facility.

ENDO-METRITIS.

Endo-metritis was one of my first acquaintances in gynecology; and a practice extending over sixteen years has but served to increase its intimacy. It is certainly, by far, the most common uterine disorder, and is to be found in the great majority of women who apply for treatment. It is likewise a disease that is much more often due to the indiscretion and folly of the patient than to causes which are incident to the life of the individual.

There has been so much written and re-written upon social ethics and the faulty state of society in the present

century, that it has, to the profession of medicine, become a hackneyed subject. If only a small part of all that is being done were given to the general public in a suitable manner, it would have its influence, and would be a power for good. If the people could be properly educated in the physiology of the reproductive organs, and impressed with the evil effects of a disregard of nature's laws, they would not so recklessly violate them.

This is the province of the physician more than that of another; and in no way can this task be so well accomplished as by the dissemination of suitable literature upon this subject. In this way matters of vital importance to the woman of the period may be brought to the attention in her thoughtful moments, when reason has its full sway, and impressions may find a lodgment in her heart. It is here the gifted medical writer can find scope for his talents in the preparation of suitable volumes, shorn of technicalities, and made plain and intelligible to the common reader. It is also here that the general practitioner becomes equally serviceable, by strong recommendations of such literature to his female patients.

It is a lamentable fact that a large proportion of our women are schooled to all the vices for the prevention of offspring. When "preventives," "uterine veils," and quack nostrums fail, the whalebone or bougie is called into use; and as is too often the case, the victim not knowing or appreciating the full import or danger of her folly. Nor is this all. Her evil influence is constantly extending and blighting the lives of the unsuspecting. Take for instance the young maiden who has just grown into womanhood. Her life has been one bright example of purity and innocence; the bloom of health is upon her cheeks; her spirits are buoyant; her sunshiny nature as bright and joyous as the innocent birds that carol around her. In her girlish pride she has in the day dreams of youth pictured to herself the sphere which she

shall fill in society, and the time when in requited love she shall become the queen of a happy home. As time passes on, her happy dream is in part fulfilled. Her affianced has avowed his devotion and promise, and the joy of that trusting heart is well nigh complete. But before the time has arrived for the nuptial ceremonies to take place, her mind is poisoned by the officiousness of female relatives and friends, and she is soon led to believe that pregnancy is the worst calamity that could befall her. She is persuaded to believe she is not yet ready for offspring; that her newly acquired happiness should be untrammelled by the cares and responsibilities of a family. She becomes burdened with the idea that society has demands upon her time to the neglect of home duties, and her mind is continually occupied in efforts to escape those duties nature has so well fitted her to perform, and every hellish device is resorted to for the attainment of this purpose.

When society and the gaieties of life have failed to fill the void which maternity alone can do, it is eftentimes too late to expect of nature, whose efforts have been so often thwarted, to intercede, and sterility is the result. Not only this, but the foundation has been laid for disease that will in the main never be wholly eradicated; and the unfortunate creature joins the great army of women who are disabled and are almost constantly under the surveillance of the physician. Her much-abused organs are the bane of her life. Sexual intercourse becomes painful and obnoxious to her. Her husband grows morose under the constant complaints and accumulating bills for medical care, while suspicion and jealousy haunts her like a demon of evil. The voyage of life that was begun under such favorable auspices, grows boisterous in the storms of conjugal infelicity. From the high noon of blissful anticipations, there is a plunge into the gloaming of disappointment, even to the darkness of despair. How different might have been the

result if the advice had been tempered with justice, as coming from a mother possessed of the proper intelligence upon these subjects.

To the experienced physician, these are not fancies. They belong to the stern realities of every-day life. Constant sexual excitement, without that repose from the ever-recurring menstrual flux which the natural period of gestation brings, is sure eventually to result in disease.

Show me a woman who has fulfilled the marital relations from two to five years without issue, and I will show you one who has some form of uterine disease. When to this are added one or more abortions, the aspect of the case becomes much more serious.

No less an authority than Lawson Tait avers that 90 per cent. of the cases of chronic metritis are the direct result of subinvolution of the uterus after miscarriage. I assert, without fear of statistics failing me, that our healthiest women, taken as a class, are those with whom nature has full sway, and who give birth once in eighteen months or two years during the child-bearing period. In making this statement, I will not even bar the accidents of labor; for except in instrumental deliveries, or the abuse of oxytocics, those cases of laceration of the cervix and perineum to any harmful extent, or subinvolution, are nearly always the result of previously diseased uterine tissue, rendering the labor to a greater or less degree unnatural.

Endo-metritis is a most chronic disease and requires the greatest patience and perseverance in its treatment. Doctor Sims says on page 398 of his "Uterine Surgery:" "Nothing in uterine disease is more difficult to remedy than endo-metritis." The chief trouble in the early history of the disease like that of nasal catarrh, is in getting the patient to persevere in treatment at a time when entire relief may be afforded. The best success obtained in the treatment of this form of uterine disease, will be the associated means for relief to both canal and parenchyma.

We quite agree with Prof. Goodell, that endo-metritis will "sooner or later involve the parenchymal structure and *vice versa.*"

As we have already intimated, endo-metritis is by far the cause rather than the effect of metritis. The stress that is laid by some authors on diagnosis is greatly strained, and the localizing of disease to certain portions of the internal mucous membrane, or the body of the womb, is one of great difficulty. While the disease most generally finds its origin in the cervix, and is in this situation more pronounced, yet I repeat, the means of ascertaining the line of disease are by no means reliable, and only in exceptional cases can the limit be made with a fair degree of certainty.

Very reliable evidence of the existence of disease throughout the canal, is the ease with which the uterine applicator can be made to pass the internal os. This affords a pretty reliable sign that the integrity at this point has been lost. Constitutional treatment is often a very necessary adjunct to local applications, but of this we will not speak.

Of all the remedies for general application in these cases the strong tincture of iodine and glycerine justly hold first rank. Iodine, through its alterative and stimulant effect, is exceedingly well adapted to the treatment of the pelvic viscera, and may be freely applied simultaneously to the roof of the vagina, cervix and endo-metrium. It relieves the turgescense of the vessels and greatly aids absorption. Its application should be followed by pure glycerine, sufficient to well moisten a pledget of marine lint or cotton to which a thread has been attached, and is to be placed over the mouth of the womb. This may be drawn away on the day following and a warm vaginal injection used.

Formally, I followed the advice of some gynecologists of making an application inside the cervix once a week, but this is too slow a process, and the best success is

obtained every second or third day of ordinary applications. Where a free application is made after thorough dilatation of the uterus, the stronger applications, as of iodine or carbolic acid, should not be thus used oftener than once a week. The application of glycerine alone, in the manner above alluded to, every second day in cases of congestion and hypertrophy has a most salutary effect. One would think that the depletion, which the womb and vagina receives from this practice, would weaken and prostrate the patient, but I have seen weak anemic women gain rapidly in flesh while the watery discharge from these applications was so free as to require the use of a napkin during the time the glycerine pledget was in place.

It is a cause for congratulation that the use of solid nitrate of silver in gynecology has fallen into such disfavor. By the indiscriminate use of it formerly, there is no doubt much harm was done. Every careful observer can but note the hard gristly condition that results from its use more than that of any other agent. This cicatricial tissue is just what the more modern gynecologist wishes to avoid or get rid of.

Erosions of the cervix are readily cured by this agent, but generally at the expense of subsequent suffering.

Of late rapid dilatation of the womb for the purpose of making applications to its internal surface, seems to be growing in favor, but it is a plan that patients will not become partial to, for it is a very painful mode of effecting that result. It is certainly more hazardous than the use of tents, when the tents are properly handled, for they are not so apt to awaken cellulitis. In my own experience with tents—of which the sponge is chosen—I have never had a bad result, or nothing but the most trifling aching, while they were in place, and this only, in exceptional cases. They should not be left in longer than from sixteen to twenty hours. The greatest harm is generally done in introducing them, and straight ones

should not be used, nor should the tent be pressed against the fundus. No one who has ever made use of curved tents, will ever wish to return to the straight ones, when the object is to pass them through the internal os.

The faulty manner of applying substances to the endometrium without first dilating the canal, must have been apparent to every one who has made the attempt. How often have we seen the os so blocked up with mucus that by no means employed could it be satisfactorily cleared away. To undertake the application of iodine under such circumstances, is to see this free mucus discharge at once curdled; the iodine pressed from the cotton dribbles out into the vagina, and when the applicator is removed the cotton is found so coated over with this inspisated mucus that it is evident the diseased surface has not been reached by the remedy. The most rational mode is to first dilate the canal; whether by rapid dilatation with an instrument, or by tents, is a matter of choice with the operator. In the great majority of cases I much prefer the sponge tents. Of these the largest is selected that may be made to pass without much force. This is introduced in the afternoon and is removed the next morning. The womb is washed out with plain warm water, and with a syringe having several return jets. Then if the case is quite a chronic one, and there is evidence of the entire canal being diseased, I prefer the free application of fuming nitric acid to the whole surface. The womb is again syringed out with pure warm water and the dressing applied. A strip of lint about half an inch wide and long enough to reach the fundus when doubled, is dampened, and both sides thoroughly covered with iodoform powder; or the lint may be used dry and well smeared with ointment on both sides, made of one and a half drachms of iodoform to the ounce of vaseline. The lint is then doubled over the end of a suitable applicator and passed up into the canal, where it should remain for four days if not thrown out by con-

traction of the womb. It is then withdrawn, the womb again washed out, and a similar dressing replaced in the patent canal. In cases where the disease is presumably limited to a portion of the canal, the uterus may throw out the dressing; but in the cases where a soft patulous condition exists, we regard this as the best means of applying one of our best remedial agents. During this time the patient is to remain in bed.

In recommending such an active agent as fuming nitric acid to the endometrium, I am fully aware that an authority like Dr. T. A. Emmet does not approve of such measures. In the latest edition of his work on Gynecology he says: "The uterine cavity has been and is to this day, made the receptacle for agents so destructive that it seems difficult to understand how their evil effects have escaped observation." I do not wish to be understood that all cases of endometritis require such treatment; but there are many aggravated ones, which have become as chronic as the ever recurring seasons, and which require more than ordinary treatment to overcome. When the nitric acid has been properly applied, it will scarcely ever need to be repeated; and we insist that it is a less harmful remedy by far than the once vaunted solid nitrate of silver. In milder cases, after the womb has been dilated and syringed out with plain or carbolized warm water, the lint tent may be introduced without resort to strong applications. The deposits of cotton in the canal from the applicator, which have been dampened and rolled in iodoform is not satisfactory, for the reason that much of the powder is rubbed off while passing through the external os; but by the other plan, the powder is thoroughly incorporated in the meshes of the lint and exerts a prolonged effect.

A small piece of marine lint should be flattened out, with thread attached, saturated with pure glycerine and placed over the mouth of the womb. This should be removed on the second or third day; not by the patient,

but by the physician, who places the finger over the os before pulling away the compress, lest the tent should be disturbed. To many these details may seem like borrowing trouble, but in such cases only a determined and vigorous fight means victory.

There is a certain class of these cases where a judicious use of the curette in the beginning, followed by the milder applications, will be the best treatment to adopt. The class alluded to is where menorrhagia is one of the prominent symptoms.

For dissolving out the products of inflammation after repeated attacks of cellulitis, and by which the uterus is almost immovably bound, nothing, perhaps, exerts a better influence than the application to the vagina every second or third day of pledgets of marine lint or cotton moistened with one part boro-glyceride, one of alum and fourteen parts of pure glycerine.

LACERATION OF PERINEUM.

Of late the weight of opinion seems to be in favor of immediate operation for the repair of laceration of the perineum. There are sound reasons in support of the advocates of both the primary and secondary operations. Where the immediate or primary operation is performed with the necessary precautions the result is most gratifying. The consent of the patient is much more readily obtained at the time of the occurence, than we may expect subsequently. In fact, with many, if the operation is deferred until a more opportune time, they may never be quite ready, or may never be able to screw their courage to the sticking point. The relaxation of the parts at the time of the accident will enable us more readily to approximate the surfaces. It subjects the patient to but very little, if any, additional risk by operating. The parts are benumbed so that pain is felt to a moderate degree. If union takes place the result is much more sure to prove satisfactory than after long delay when we

have to deal with indurated cicatrices and muscular contraction. The repair of the mischief during the time when the patient must necessarily remain in bed, is a gain of much importance to the poorer classes.

On the other hand, it may be urged that patients might be too frequently subjected to the pain and inconvenience of an operation by those who are not possessed of the requisite knowledge and skill to perform the operation successfully. The claim has been made that success does not often enough follow the primary operation to justify the inconvenience and risk that it entails. The lochia is not only the great obstacle to success, but it will insinuate itself between the surfaces, become putrid, and greatly enhance the danger of septic poisoning. The points of suture will also prove an additional risk. This is one of the accidents of labor that will occur at times, notwithstanding the best directed efforts for its prevention, but with due care it can most generally be prevented where it would otherwise happen. The obstetrician who is most intelligently painstaking, will not have so much remaining to occupy his attention as a gynecologist. I do not believe a perineum was ever saved from rupture by supporting it; that is, by pressure upon it. Pressure does not give support, and fewer accidents will happen if it is never touched with any such view.

The obstetrician will have the best results who gets full control of his patient, by impressing her with the great necessity of ceasing her efforts at expulsion at the critical moment, and by making pressure upon the head of the child and leaving the perineum severely alone. By directing the patient to cease bearing down and to breathe rapidly, the passage of the head may be controlled until the parts have had sufficient time to dilate. Again, the obstetrician who ruptures the perineum in instrumental deliveries, does so by failing to remove his forceps soon enough, or by undue haste.

While Prof. Goodell warmly advocates the primary

operation in all lacerations, yet he is frank to acknowledge that it is not so successful as the secondary. He further says: "This lack of success is said to be owing to the flurry usually attending the immediate operation and the lack of skilled assistants, to the irregular surfaces of the rent which prevent coaptation, and to the lochial discharges, which insinuate themselves between the surfaces of the wound and hinder union." Skilled assistants are very important it is true, and the country practitioner is too often disappointed, even though he go in search of them.

We believe the chief cause of failure, in the hands of those possessed of the requisite skill to do the operation properly, is the neglect to properly prepare the torn surfaces of the wound. Every surgeon has noted the differences in results of incised and contused wounds of the scalp; for instance, those made with a sharp cutting instrument, in comparison with a blunt one. In the first instance if the wound is properly cleaned and made aseptic, we will hardly fail of primary union. On the other hand, if the bruised edges are properly incised before approximating them we may expect equally good results. This is just what we propose for the success of this operation. It is expecting too much of nature to heal opposing surfaces that are irregular, ragged and lacerated. All the irregularities should be cut off, and especially should the edges on the mucous surface be made straight and smooth. The knife, or rather the scissors, should not be used mincingly, for we will always have enough and to spare.

The sensation is much blunted for a time after the rent has occurred, and with the aid of a four per cent. solution of cocaine freely mopped on the surface, the paring may be done without much pain. A sponge should be placed in the vagina if the lochia is troublesome. Then with the finger in the rectum, and scissors curved on the flat, a beginning should be made in the angle of the

wound and carried upward; for the bleeding will be much freer when the lacerated mouths of the vessels have been cut off and the view of the lower untrimmed portions will be observed. A few *serres fines* will be of great service applied to the larger vessels, or the hemorrhage may be controlled by clamping a side at a time with suitable forceps while the cutting operation is being done.

When the paring has been finished, the sponge is to be removed and the sutures introduced after the usual method, not more than a quarter inch apart, care being taken to pass them through the mucous membrane very near the edge. The sutures should be of silver; and after they are all in, the vagina and surfaces of the wound should be thoroughly irrigated with hot carbolized water, two drachms to the pint, and the wound quickly closed.

At this juncture occurs one of the most important details of the operation, that of keeping the wound entirely free from clots however small, while it is being closed. This can be well done by a constant stream of water from a syphon, which should be kept playing on the wound during the proceedure of tightening the sutures. The sutures should be more tightly drawn than ordinarily is done in the secondary operation, and secured by simply twisting them. The thighs should be bound so they can be but slightly separated, and the patient required to lie well over on first one side and then the other for the first two days, except during the time when warm injections of weak carbolized water are used, which can be best done while on the back. The injections should be used once in eight or twelve hours, and the catheter used at the same time. Very soft old pieces of linen should be placed to receive the lochial discharge and frequently changed.

Unless there be great prostration or some other special reason, after the lapse of forty-eight hours the patient should be very carefully assisted to her knees, with the

body leaning forward and the knees slightly separated. In this position she should pass the urine in a small vessel held by the nurse, and the parts dried by a soft cloth before the recumbent position is again assumed. This suggestion is not so much to avoid the catheter as to facilitate the passage of clots from the vagina which will otherwise decompose and give rise to trouble. The bed-pan is a poor invention for lying-in women, and should never be tolerated except in cases where it is absolutely required for some special reason, and the obstetrician who requires his patient to empty the bladder in the sitting posture, will have much less of sepsis to contend with.

I believe that Prof. Horace T. Hanks of the New York Post-Graduate School, was the first to suggest keeping the bowels soluable and non-constipated from the time of the operation in secondary cases, and some who have adopted it are quite partial to this plan. When the rent has involved the rectum we think it safer to confine the bowels for eight days and then make a judicious use of ox-gall enemata. Except in cases where the patient is prostrated from loss of blood or other causes rendering the operation inadmissible, we have become convinced that it should be done as soon as the necessary preparations have been made. If the operation is worth doing at all it is worth doing well. Tying the knees together or putting in a stitch or two in a slovenly manner is worse than useless, for the surfaces will be constantly bathed in lochia and healing will absolutely not take place. But with the stitches properly introduced and not more than a quarter inch apart, the lochial discharge will hardly find an entrance to the wound.

If due attention is paid to details, we will hardly fail of more satisfactory results than can be obtained in the secondary operation, for the reason that we bring the relaxed muscular tissue in contact and get union before it has had time to retract and shrink away.

ABDOMINAL SURGERY.

The success of abdominal surgery, it would seem, has about reached its climax, and statistics are offering results hitherto unknown in the operation of laparotomy; and like many other new departures it is being carried to extremes. Surgeons everywhere are vieing with each other in the multiplication of cases. That the operation, as at present perfected, has restored to health and added many years of life to unfortunate women, there can be no doubt; but that the operation has sometimes been performed before exhausting other means for relief, is beyond question.

The freedom of risk to life in certain operations too often leads to their abuse, and among capital operations this one has grown to immunity from danger far beyond the expectations of surgeons a few years ago. Prof. Gill Wylie, of New York, has just published a report of 125 laparotomies with but 12 deaths. These operations cover a period since November, 1882, fifty-five of which were operated upon in 1886. The cases are classified as follows: Seventy-four oophorectomies with five deaths (the five deaths being complicated cases); twenty-six ovariotomies with three deaths; seven suprapubic hysterectomies with three deaths; eighteen miscellaneous laparotomies with one death. Among the last thirty-six cases operated on for removal of uterine appendages, he has had but one death. This is certainly a good showing so far as fatality is concerned. Dr. Wylie speaks most highly of hot water injected into the peritoneal cavity to check hemorrhage and prevent shock. He says the temperature of the water should be from 105 to 110 deg., and alludes to the magical results obtained in lessening and preventing shock. He thinks if the temperature of the water is above 110 deg. it may cause shock. He claims originality for this manner of irrigating the peritoneal cavity with hot water.

Doctor Wylie in summing up his experience, says:

"That the tympanitis and vomiting and other symptoms supposed to be due to septic peritonitis after laparotony, are best overcome by enemas, and after these fail, by a quick purgative. That in these cases, at least, the bowels should be moved and not kept constipated as has been generally practiced." He thinks many cases of exhausting vomiting is due to intestinal obstruction resulting from the bands of adhesion which constrict the intestines. When the vomiting continues and there is tympanitis, he thinks it the best practice to move the bowels, "even during the first twenty-four hours after the operation." He is careful to make a distinction between the vomiting due to obstruction, and that due to ether. In noting the difference, he says, the vomiting from ether is "preceded by marked nausea, and is usually violent and gagging in character, while that from obstruction is passive and more like eructation." The quantity vomited is large, and at first brownish colored, and attended with extreme exhaustion and marked tympanitis." He lauds the opium treatment of Dr. Alonzo Clark as the best in local or general peritonitis, but is very emphatic that it is not the best plan in septic peritonitis after the operation of laparotony. He uses sufficient opium or morphine to relieve pain and restlessness, and slow the respiration, and further adds: "But when tympanitis or eructive vomiting begins, I at once move the bowels by turpentine, or ox-gall enemas, or by a seidlitz powder or Rochelle salts." Would not the good old-fashioned dose of castor oil and turpentine be better?

LISTERISM.

There seems to be a growing disposition among many members of the profession at the present day to treat lightly and indifferently the subject of Listerism in the management of wounds, and especially in operations in gynecology. The so-called opponents of Listerism are ever ready to allude to the brilliant achievements of

Keith and Tait without antiseptics. Dr. F. H. Hamilton, to whose eminent abilities every American can point with pride, published an article in the *Medical Record* a short time before his death, entitled "The Art of Primary Union, or Union by Adhesion in Large Incised Wounds." In that article Dr. Hamilton lays down certain rules for the accomplishment of these results, which, very briefly stated, are as follows:

"First, a good, or at least an average state of the general health, and especially the absence of any systemic infection or dyscrasia such as pyemic or septicemic infection, struma, syphilis, etc."

"Second, the removal of all foreign bodies," in which he speaks particularly of blood.

"Third, nonclosure of the wound till it becomes glazed with coagulable lymph."

"Fourth, to carefully avoid unnecessary violence to the parts by the 'hands, sponges, sutures, adhesion strips or bandages, or at a later day, in the removal of the dressings.'"

He says: "The several conditions above named as necessary for the union of large wounds by adhesion are not now for the first time declared."

He further says: "I believe, also, that a strict compliance with these rules constitutes the only grounds for the superior success of some surgeons as compared with the success of others at the present day; and if their success is greater than that of surgeons who, fifty or one hundred years ago, practically applied these rules, and I am willing to concede that it may be, although it is not proven, it is because they have more exactly complied with the conditions named."

In alluding to the success of surgeons before the era of Listerism, who practiced with due regard to the rules he has laid down, he specially mentions Alanson's 35 cases of amputation of the leg and thigh without a death, Syme's 20 amputations of the thigh for chronic disease without a

death, Percy's 92 cases of soldiers treated on the battle-field with but 6 deaths, and 70 cases treated by Lucas with only 5 deaths.

Dr. Hamilton then propounds the question: "What treatment, either ancient or modern, has presented a better record than this furnished by Alanson, Syme, Liston, Percy, Lucas, and, so far as we know, by the faithful disciples and distinguished advocates of their practice?"

It has been asserted, and we think very justly, too, that "the statistics of modern surgery abound in *better records.*"

In 1880, Neuber, of Keil, reported to the Congress of German Surgeons, 83 major operations which had been treated by antiseptic absorbent dressings without a death, and of this number 60 healed with but a single dressing. Again, Dr. M. Oberst reported in 1881, 261 cases with 14 deaths, and of the number dying, 10 are attributed directly to collapse. Of the remaining 4 cases he attributed the causes of death severally to anæmia, tetanus, exhaustion, and habitual erysipelas.

It is on account of the abiding faith we have in antiseptics, or in other words, Listerism in a modified form, and a due regard for the merits of one so justly celebrated as Lister, that we have made this digression. I believe he deserves the encomiums of the profession everywhere as one of the greatest benefactors of mankind. To him is certainly due the credit of fashioning thought and creating a tidal wave in surgical science that has commanded the attention of the world.

Dr. Hamilton in the article above alluded to, claims and proves that the success of the illustrious surgeons above named was at a time when they procured the union of wounds by adhesion; after this followed an era when surgeons "faltered," and were "everywhere returning to the practice of leaving their large incised wounds to suppurate and granulate." While plainly antagonistic to Lister's plans and theories, he is not unmindful of the

laurels he has won when he says: "Through the agency of one man, Mr. Lister, the practice of union by adhesion was happily restored." Lister produced a perfect revolution in surgery by the revelations he published to the world, and his fame will justly be celebrated in all the ages to come. Not because his antiseptic theories and teachings will hold sway among the devotees of the great science of surgery, for it matters not if his special plans be abolished on the morrow by the profession everywhere, his fame will be imperishable as that of Jenner, Hunter, and Pare. We learn that Pare's first conception and trial of the ligature was of the most crude nature, but it gave to the world a germ that yielded rich fruits to suffering humanity. This was the nucleus from which it was brought by crystallization of thought and experiment to that perfection in which we at present behold it.

It matters not whether germicides longer find a place in surgery. The achievements of Lister are none the less brilliant, but on the contrary are daily exerting influences for good that are not properly appreciated. It has been asserted, and very properly, too, that if the question were thoroughly investigated it would be discovered that each, and everyone, of the considerable number of distinguished surgeons, who are antagonistic to Listerism, is nevertheless carrying out his principles in a "*modified form.*"

What but the teachings of Lister has led up to the triumphs and successes in surgery in the present century? And is it not alone due to the ideas that he promulgated that surgical science has received an impetus that has not been felt for ages? It has been said that "strict attention to detail in operation and treatment, perfect cleanliness, and proper drainage is the true reason for Lister's success, and not his germicides and gauze." We offer no objection to this simple statement; but when captious members of the profession aim an aspersion at

the justly merited claims of Lister, they not only do him great injustice, but they are discouraging that spirit of emulation which has ever been an incentive to achievement and renown. What but the new life he gave to surgery has perfected the "details" of the present day? The preparation of the hands of the operator, of sponges, ligatures, sutures, dressings, the care of instruments and the numberless "details," are the direct outgrowths of the system he inaugurated.

ELECTRICITY IN GYNECOLOGY.

By J. H. WYTHE, M. D., Oakland.

Electricity has long been known as a potent and efficient agent in the treatment of disease, yet owing to the general ignorance of its mode of operation and the wonderful results which have followed its application to the arts of civilized life, its medicinal use has become a fertile source of quackery in various forms. It is a hopeful sign of professional progress during the past few years that its effects, and the indications for its use are becoming better known, and the sphere of its application in medicine more widely extended. It is ceasing to be common for physicians to advise the domestic use of so powerful an agent or to permit the indiscriminate use of galvanic baths, belts, clothing, or other appliances of so-called magnetic, or galvanic healers. These things will remain in the borderland of ignorance until the public mind is better informed respecting physiological matters; but the reformation must begin in the medical profession, whose members are the real teachers of the world concerning such things.

The effects of electricity differ greatly, according to the nature or form of the current employed, and the mode of its application. The induction current, which is the form most commonly used, whether produced by chemical action, or by a helix revolving between the poles of a magnet, excites the contractility of the muscles, and indirectly stimulates nerve-action. The effect of the

first, or primary helix, of an induction battery, is seen chiefly in the glandular organs under the skin, while the more intense action of the secondary current from the external helix, excites more strongly the cutaneous sensibility, and the contraction of the deep-seated muscles. The effects vary also, according to the rapidity of the interruptions, and the form of electrode used. A sponge wet with salt water will conduct well to the deep muscles, while a metallic wire brush will act as an irritant to the skin.

The galvanic current has a more direct chemical action than the induction form, and acts more powerfully upon the nerves. It is often called the uninterrupted current to distinguish it from the other. It may be used as a sedative, an excitant of nerve-action, a tonic to the nutritive functions, or a promoter of chemical decomposition. (Electrolysis).

A therapeutic agent of such varied powers calls for careful discrimination in its employment. The absence of such discrimination has been the chief cause of its neglect in the treatment of many cases of disease which would yield to it more readily than to other agents of the materia medica.

In Gynecology electricity has been used for many years with considerable success, and in a great variety of cases. Neuralgias, and even atrophies of the uterus, and many cases of dislocation and curvature have been greatly, and often permanently relieved by it, while recent reports indicate its great value in the treatment of fibroid tumors. In many cases it not only checks the excessive hemorrhages which often accompany the tumors, but actually reduces them in size, so as to avoid the necessity of resorting to operative surgery.

More than thirty years ago the writer was in the habit of using Prof. Simpson's galvanic stem pessary for the relief of uterine versions, and found them serviceable in many cases. During a large experience he never

observed a tendency to the dangers which some authors attribute to their use. The small amount of surface exposed to chemical action rendered the galvanic current produced by these stems very feeble, yet there was a current, since the zinc portion would speedily corrode. In a case where one was used after an operation for atresia, to keep open the artificial cavity made by the knife, the action was powerful enough to re-establish for several periods the menstrual flow which was suspended or performed vicariously from the nose or lungs for twenty years previously. This interesting case was cut short by a fatal attack of remittent fever.

For several years preceding the Civil War a number of cases of anteversion and prolapsus were treated successfully by Seymour's Galvanic supporter, which in addition to its peculiar method of abdominal compression gave a very efficient galvanic current, which in some cases had to be modified by a layer of chamois leather between the zinc plate and the skin. After coming to California I tried to procure one of these supporters for a suitable case, and found their manufacture had been interrupted by the war, and my attempts to make a similar one were so marred by unskilled workmen and high prices, that I have since contented myself with the use of the ordinary faradic and galvanic batteries, and their improved electrodes. About twelve years ago I began to use electrolysis in fibroid tumors of the uterus, with gratifying, though somewhat varying success. From a number of cases treated I select for this report a few which may be termed typical.

The first case was the wife of a commission merchant in San Francisco who was placed in my care by Dr. Bentley of the U. S. Army on his being ordered to a distant post. I had already seen her in consultation with the Doctor, who agreed with me in the diagnosis. It was a case of multiple sub-peritoneal fibroid tumor. The largest mass was estimated at four and a half inches diameter

and the smallest as large as a small orange. There were seven or eight in all. I recommended the continuous employment of electrolysis for months, and carried it out with fidelity for a year.

At first every other day, and afterward weekly, the current from fifteen to twenty-five cells of the battery made by the Galvano-Faradic Company was passed through the tumors. At the commencement of the treatment I used the insulated needles passed into the mass through the abdominal wall, but threatening peritonitis obliged me to desist, and I then used, first an insulated needle, and after some weeks an ordinary uterine electrode per vaginam, and a broad sponge-covered carbon electrode over the abdomen. The result of this treatment was that by the end of the year only three or four of these tumors remained, and the largest was less than the size of the smallest at the beginning.

They afterwards decreased in size, although treatment was suspended, until the patient reported herself as entirely free from them, and there has been no return since, after eleven years.

In another case, kindly referred to me by a prominent member of this Society, a large intramural fibroid was complicated with the results of successive attacks of cellulitis, and occasional alarming hemorrhages. A short time before I was called she had made a trip East, and on her return was attacked with so severe a flooding that she was obliged to remain awhile under treatment at Chicago, and her physicians despaired of her reaching home alive. In this case I used the ordinary tip Kidder Battery, as I desired the combined effects of the faradic and galvanic currents. I also found it necessary to use local applications to the cavity of the uterus. The main dependence, however, was upon the electric current which was used every other day for three months, when she was discharged perfectly cured, and has remained well for several years past.

Another case of fibroid tumor, complicated by large and exhausting hemorrhages, was not so fortunate. A large galvanic battery was used, with quite a number of cells; sometimes fifty or sixty were used, but with no perceptible effect. After consultation with Prof. Ellinwood and Dr. Von Hoffman, Battey's operation was performed, and both ovaries, affected with cystic degeneration, were removed. The patient died of peritonitis on the fifth day after the operation.

The case of the wife of a leading practitioner in a neighboring city is typical of quite a number occurring in my practice. The doctor requested a careful examination and advice respecting his wife's case, telling me at the same time that she had been examined by several eminent gynecologists, who advised her to submit to laparotomy and removal of the ovaries. I found a large mural fibroid, accompanied by such exhausting hemorrhages, as practically isolated the patient from society, and made her life a burden to her. I recommended the electrical treatment. Before determining, however, my friend wrote to Dr. Emmet of New York, and Dr. Thornton, of London, who advised him to try electricity before operating. Every other day the current from a Kidder Battery was passed through the uterus, and in a short time the hemorrhages ceased, the tumors decreased in size, and the patient regained her usual health and spirit.

It is unnecessary to repeat similar cases. Enough has been shown to prove the utility of electricity in a class of cases which usually presents such formidable symptoms as to suggest the knife as a sort of last resort. For the cure of such cases, however, experience suggests that no considerations of economy nor ease must stand in the way of a persevering application of the remedy. The physician himself must apply it, in accordance with enlightened judgment, and it must be repeated often enough to keep up an almost continuous action, week

after week, and perhaps month after month. Herein lies the practical difficulty. Many of our patients are unable, and others unwilling to compensate suitably for such service, and it is apt to be regarded as a thankless drudgery, but the gratitude of some will be a compensation for the injustice of others, to say nothing of the true reward which rests in the "*mens conscia recti.*"

REPORT OF COMMITTEE ON

OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

HISTORICAL SKETCH OF OPERATIONS FOR CATARACT.

By A. P. WHITTELL, M. D. San Francisco, Chairman.

It is not possible, within the limits of a paper of this kind, to enter elaborately into the details of the history of the subject. The brief sketch here presented will suffice to give a cursory glance at the main steps in the evolution of the modern operations for cataract and a comparison of the results in the past with those of the present.

The true nature of lenticular cataract was apparently unknown to the early writers, who generally ascribed it to a false membrane growing over the anterior surface of the lens. The Arabians called it *gutta opaca*, and believed it to be due to the secretion of a milk-like or coagulable fluid. It was not until the middle of the seventeenth century, that Rolfink and others demonstrated that it was due to molecular changes in the substance of the lens itself impairing its transparency, but the term *cataract* continued, long after his time, to be applied to several conditions of the eye, which were not true cataract, in which vision was impaired, not from any opacity of the lens itself, but from the effusion of lymph, pus, blood, etc., into the pupillar area and anterior chamber; these were known respectively as fibrinous, purulent, and sanguineous

cataracts, etc., and were considered of doubtful curability by operation. The *Morgagnian cataract*, which was described in treaties on diseases of the eye, until recently, and which was said to be due to the effusion of an opaque fluid between the lens and its capsule, is probably a relic of the *gutta opaca* of the Arabians.

However imperfectly the nature of cataract may have been understood, the blindness it occasioned was known to be curable by surgical interference prior to the time of authentic record. That it was by one of the two operations now known as *displacement* and *discision* there is no question, but which first came into use, opinion is divided upon; the probability is, that both were practiced simultaneously or nearly so. Both operations required an instrument of similar construction, and the method of procedure in each being somewhat similar, the practice of either operation would soon suggest the other, for if in the attempt at luxating a soft cataract, the capsule was ruptured and the lens divided, it would in consequence, be, in time, completely absorbed. Such an occurrence would be profited by, by an intelligent observer and repeated intentionally. If, on the other hand, the operation for division were primarily intended upon a hard senile cataract, the lens would resist division and be dislocated by the efforts of dividing it, pushed aside from the line of division, and sight would be restored to the patient.

In the writings of Galen he mentions what was already in his time a tradition, that for the operation for cataract, man was indebted to what was observed to happen to a goat whose eye had been penetrated by a thorn, which after recovery from the wound retained the power of sight.

In the reference which Galen makes, the thorn might either have dislocated the lens and pressed it away from the pupil without rupturing its capsule, or it might have punctured the capsule and caused a traumatic cataract, with subsequent absorption of the

lens and restoration to vision. It is hence obviously impossible to judge which of the two results took place, and whether the operation by discision, or that by displacement was thus discovered. The probable result of the penetration of the eye by the thorn was the rupture of the capsular membrane producing absorption of the lens, which would favor the belief that discision was the operation thus suggested. If this was so it certainly fell into disuse, or became auxiliary to the operation of *couching* or *luxating*, which was the regularly practiced operation for cataract, until the introduction of extraction and the rediscovery of discision.

It is evident, however, that the use of the needle for *division* was not wholly abandoned, but was improved upon, by making the needle hollow, and through which the disintegrated lens was aspirated, for we find in the writings of Albucasis, in the early part of the twelfth century, reference to it, as follows:

He says, "I have been informed there are some who pumped out the cataract through a hollow needle," evidently referring to the operation as having been made prior to his time.

Observing that a cataract became semi-fluid after an operation for division, the idea would naturally be suggested to withdraw the softened and broken down lens by suction through a tube, instead of waiting for a slow and gradual absorption.

Wells says in reference to this mode of operating, "Although it appears that the idea of employing suction for the removal of cataract dates back to, and probably prior to the fourth century, and has been since advocated by several authors, more especially of later years by Blanchet and Langier, it never attained a recognized position until it was introduced by Mr. Teale of Guy's Hospital." Mr. Teale devised an ingenious instrument, especially adapted to the purpose, which has been somewhat modified but not improved by Mr. Bowman, since which the

removal of softened and broken lens matter by suction holds a prominent place in ophthalmic surgery and is commonly employed in those cases to which it is applicable.

It is not until the latter part of the seventeenth century that we find a case recorded in which a cataract appears to have been cured in a young person by the introduction of a needle through the cornea. McKenzie says, "this case is considered the earliest example of an attempt to procure a solution of the lens by puncturing the capsule." The fact, however, that the operation was performed upon a young person would imply that it might have been already known that the operation was only applicable to the soft cataract of youth.

It appears that Barbette in 1672, Read in 1706, Maitre-Jean in 1711, all availed themselves of the knowledge of the fact that a cataract which had merely been cut up and left in its ordinary situation, would, after a certain length of time disappear. The operation was, after 1775, in Germany, called Potts' operation, who gave it the name *dissolution* and who published his observations in that year. He says, "I have sometimes, when I have found the cataract to be of the mixed kind, not attempted depression but have contented myself with a free laceration of the capsule, leaving the parts in their natural situation, in which case I have hardly ever known them to fail of dissolving so entirely as not to leave a vestige of a cataract."

The merit of proposing *discision*, as a distinct method of operating belongs, in more modern times, to Conradi, a surgeon at Nordenheim in Hanover, an account of which he published in 1797. He used a needle, or rather a small lancet-shaped knife which he at once passed through the cornea, punctured the anterior hemisphere of the capsule and then withdrew the instrument leaving the cataract to be dissolved; an operation which a contemporary writer said "certainly is one of the simplest yet

proposed for the cure of this disease, being executed with a single instrument and interesting only the cornea and the capsule."

Conradi's operation was quickly put to test in several parts of Germany; in many cases it proved successful, in others the punctured incision in the capsule was found to heal up and thus the solution of the cataract was interrupted. Buchhorn, of Magdeburg, then added two important steps to Conradi's operation, namely, to divide the lens as well as the capsule, and to bring forward the fragments of the cataract into the anterior chamber with the flat side of the needle.

The operation through the cornea was designated as the *anterior operation for absorption;* when later, others passed the needle through the sclerotic and behind the iris and distinguished it from the corneal operation by the name of *posterior operation for absorption.*

It seems evident, however, that the operation by displacement, luxation or depression, which consists in applying the side of the needle to the margin of the lens and forcing it away from the pupil, was practiced for many centuries without material alteration or improvement, and until extraction gradually caused its abandonment.

A cataract which had been depressed, and showed a disposition to re-ascend in spite of all efforts to keep it down, was termed an elastic cataract, in which case the tendency to rise was prevented by completely severing the capsular attachments by a sweep of the needle entirely around the margin of the lens. In his work on surgery, published in 1363, DeChauliac says, in reference to the time the depressed cataract should be retained by the needle in its new position, "the operator must keep it in place during a length of time sufficient to repeat the Lord's prayer three times, or the *Miserere* once."

Re-ascension of a depressed cataract was of so common an occurrence, that by some the operation was considered

only a palliative cure. In many cases it had to be repeated six or seven times, at intervals of from three weeks to several months. Beer saw a lens, which had been depressed thirty years before, re-ascend in consequence of a fall upon the head.

Willberg, in 1770, proposed a modification of *depression*, to which he gave the name of *reclination*, and which consisted in applying the flat surface of the needle rather to the anterior surface of the lens, and pressing the cataract backward and downward, tilting it and imbedding it in the inferior portion of the vitreous humour, leaving it with its anterior surface directed upward, and touching no other portion of the eye, thus overcoming some of the many objections to the old operation of depression, some of which were, that the lens frequently returned to its former position, that there was not room for it without pressing dangerously upon the ciliary body, and that it was frequently thrust between the retina and choroid, or completely through these membranes.

About the year 1703 a French surgeon named St. Ives, while operating upon a cataract by displacement, accidentally pushed the opaque lens into the anterior chamber. The idea then occurred to him of making an incision in the cornea and removing the lens entirely from the interior of the eye, which he accordingly did; and from this originated the operation for cataract by extraction.

Mery who had seen St. Ives' operation, was led by it to recommend extraction through the cornea as a mode of removing cataract worthy of being generally adopted, judiciously remarking, "there is less risk of removing the cataract from the eye than to push it back inside."

In 1708 Petit operated for the same reason, and in the same way that St. Ives had, and he it was from whom Daviel, a French surgeon residing in Marseilles, copied. Daviel is generally credited with the honor of introducing extraction as a regular method of curing cataract, but

Beer denies this, although he claims it for no one in particular. Daviel commenced his operation for extraction by passing a small lancet-shaped knife into the anterior chamber close to the lower edge of the cornea; he then enlarged the incision by a blunt-pointed double-edged knife, following the periphery of the cornea; the semicircular section was completed with bent probe-pointed scissors.

The inconvenience arising from the employment of so many instruments was soon perceived and remedied by Peluci, LaFoye, Sharp and others, who substituted a single knife which, being entered at the temporal edge of the cornea, passed through the anterior chamber and made its exit at the nasal edge of the cornea, and, according to the form of the knife used, either by its progressive motion forward, or by being pressed downward, completed a crescentic incision parallel to the edge of the cornea.

The wedge-shaped knife known as Beer's, is the best type of the former, the latter having a straight and narrow blade, slightly broader than the knife now used for Von Graefe's modified linear incision.

After the operation the lids were gently closed and a piece of adhesive plaster placed over them. It is noticeable in connection with the practice then followed, that the head bandage, since introduced, is giving way to the older, better and simpler dressing.

The after treatment consisted, with some operators, in keeping the patients confined on their backs, without change of position, for a fortnight or three weeks, whereas those who followed the other extreme, examined the eyes on the morning following the operation, applied a shade, and allowed the patient to rise.

The incision was generally made in the lower half of the cornea; some few operators preferred the upper half, and some made the incision at an angle of forty-five degrees.

The change from making the section in the lower part

of the cornea to the upper part, is generally credited to Wenzel, the elder, who in 1786, habitually operated on the upper half of the cornea. Richter, in his treatise on *Extraction of Cataract*, published in 1791, merely says the upper section is practicable.

It seems hardly credible that the operation for extraction would continue to be made in one segment of the cornea for a period of three-fourths of a century, unchanged from its first introduction, yet such seems to have been the fact.

Bell gives in his *System of Surgery*, published in 1801, several reasons for preferring the upper section to the common method of making the incision downward, parallel to the lower edge of the cornea. Santorelli operated in 1795 on the upper half of the cornea, making his incision with a broad lancet-shaped knife, introducing the point first into the center of the upper margin of the cornea.

An accident which ruptured the sclerotic and permitted the escape of the lens through the wound, followed by perfect recovery, suggested the extraction of cataract through the sclerotic; it seems, however, only to have been practiced by the more adventurous operators. Lobenstein-Lobel was led to form a favorable opinion of the operation from observing a successful recovery from a similar accident, although he does not seem to have ever practiced the operation himself. Bell, in 1796, suggested extraction through the sclerotic, but confined his experiments to the lower animals. He recommended that the knife be entered about one-tenth of an inch behind the cornea. Wenzel relates that Janin operated on seven cases, through the sclerotic, but upon all of them unsuccessfully. Sir James Earle, in 1801, strongly advocated the operation through the sclerotic, claiming for it that the wound need not exceed more than one-[illegible] the extent of the incision required in the ordinary [illegible] of extraction through the cornea, and the injury

to the vitreous was less than that from the old operation of displacement or couching. He devised an instrument for making the operation, which consisted of a small lancet moving backward and forward, between the blades of a pair of forceps. This was introduced just behind the iris, through the sclerotic, the incision being either parallel with the margin of the cornea or perpendicular to it, the lancet was then withdrawn, the cataract was seized by the forcep blades and withdrawn. He was led to believe that the incision made perpendicular to the margin of the cornea, offered some advantages over that parallel with it, namely, that it healed more readily, and the danger of cutting the choroidal vessels was lessened, but "at the same time," he says, "an incision five lines long which would be necessary to the extraction of the lens, the mere diamater of which measures four lines, must, if perpendicular to the edge of the cornea, implicate the retina. Quadri of Naples operated upon twenty-five eyes by extraction through the sclerotic; eleven only of these were successful, a proportion too small, however, to tempt any one to abandon the operation through the cornea for that through the sclerotic.

Recently, in Vienna, Mauthner, a former assistant of Jaeger's, operated for a period almost exclusively for extraction through the sclerotic, and with such success as to compare favorably with results obtained by others with Von Graefe's peripheral linear extraction.

A number of methods have, from time to time, been proposed for the treatment of cataract without operation. The treatment was divided into three kinds by some writers, namely, antiphlogistic, stimulant and counter-irritant. Blood-letting and the use of mercury played an important part in the treatment of cataract as it then did in every other form of ailment.

A note by Weir to Wenzel's treatise on cataract, says, the remedies which have appeared to him more effectual than others, have been the application to the eye itself of

one or two drops of ether once or twice a day and occasional frictions of the eye on the lid with the point of the finger first moistened with a week volatile or mercurial liniment.

Electricity and galvanism were also tried. Magendie, in 1825, recommended stimulation of the fifth nerve with the expectation of influencing nutrition of the lens. He says, "If a want of nervous influence leads to opacity, excitation may remove the tendency to cataract or even restore in some cases, the natural transparency."

Sperino recently, in Turin, attempted to cause the opaque lens to regain its transparency by repeated evacuations of the aqueous humour, but unsuccessfully, although in one case one hundred and sixty-seven tappings of the anterior chamber were made.

Gibson, in 1811, Travers, in 1814, and others, with the intention of lessening the danger to the cornea from so large an incision as in the flat operation, operated on firm cataracts through a small linear incision in the cornea, occupying only one-third of its circumference, making this supplementary to division of the lens. In this operation the capsule was first ruptured by means of the needle passed through the sclerotic, the lens then pushed through the pupil into the anterior chamber from which it was dragged out, whole if soft, piecemeal if hard, through the small corneal section.

The linear operation fell into disuse until about 1851, when Von Graefe and Bowman, quite independently of each other, re-introduced linear extraction. Von Graefe found that although a cortical cataract, or one not possessing a very firm nucleus, might be removed through a small linear incision, it was dangerous to attempt when the nucleus was hard, for the iris must then be more or less bruised by the lens in its passage through the narrow section.

He observed that the segment of iris which corresponds to the incision is the most exposed to bruising and

interferes most with the use of a scoop and that it was always the starting point of iritis; he was therefore led to modify linear extraction by excising a portion of the iris prior to the laceration of the capsule after which the lens was lifted into the anterior chamber and extracted by the aid of a scoop.

To Von Graefe is also due the credit of suggesting the combination of iridectomy with flap extraction.

The last and most important modification of the linear operation was devised by Von Graefe, in 1864, and is termed the *modified linear operation.* In this the incision permits the escape of the lens without the necessity of introducing a scoop into the eye, through a wound which involves but a small portion of the cornea proper, which yet gapes sufficiently for the escape of even a hard senile cataract.

The introduction of an instrument, as in the scoop operation, behind the lens, however delicately done, was so very frequently followed by rupture of the hyaloid membrane and the escape of more or less vitreous, that its abandonment removed a serious source of danger, since which the loss of vitreous is of comparatively rare occurrence.

Von Graefe reported loss of vitreous in only six cases out of two hundred and thirty operated upon, or only two and four tenths per cent.

The success of *modified linear extraction* was so far in advance of any operation for cataract hitherto devised, that it soon became generally adopted to the almost complete exclusion of every other method.

The inconveniences arising from the removal of a portion of the iris occasioning loss of its accommodation to light, has induced some operators to dispense with iridectomy, notably Liebreich, who advanced the section, making it more like the original linear section, entirely in the cornea, but longer, its extreme ends penetrating the sclerotic about half a line, the plane of the incision at

an angle of 45 degrees to the plane of the iris, and almost perpendicular to the substance of the cornea. Lebrun's incision is almost identical with Liebreich's, except that it is upward and at an angle of about 30 degrees to the plane of the iris. Numerous other modifications of greater or less degree in the manner of making the incision have been suggested, each possessing some merit, but not greatly differing from the others.

Removal of the lens with its capsule has been successfully attempted and originally practiced by Richter and Beer, and has lately been re-introduced by Pagenstecher and MacNamara, who removed the lens within its capsule, the one with an iridectomy, the other without. However desirable the removal of the capsule with the lens may be the danger of rupture of the hyaloid membrane and loss of vitreous in attempting it, prevents its extensive adoption.

There is no question that a successful operation without iridectomy, such as flap extraction, or by the modern corneal section, when it turns out perfectly successful, is the most perfect operation of all. It is much less painful to the patient when no anesthetic is used, it does not interfere with the appearances of the eye after recovery and, except for the loss of accommodation, sight is perfect and is not interfered with by the circles of diffusion on the retina after iridectomy. These great advantages are, however, in the opinion of some, more than counterbalanced by the greater danger to the cornea from the corneal section, and by the bruising of the iris, to which it is subjected during the passage of the lens through the pupil, or from subsequent prolapsus of the iris through the wound.

It remains to be seen whether the corneal operations without iridectomy, which are extensively practiced by many operators of large experience, are capable of giving so high a percentage of useful eyes as Von Graefe's peripheral modified linear operation.

The almost certain success following the operations of extraction as now performed gives a pleasing contrast when compared with statistics of former times in favor of the present. According to reliable authority, of thirty-four cases operated upon by Daviel, at Rheims, prior to 1753, seventeen, or fifty per cent., were restored to sight, eight saw indifferently, nine received no benefit. In June of the same year (1753) La Foye, Poyet and Morand operated the same day on nineteen cataracts, La Foye and Poyet by extraction, each by his own method, and Morand by depression. Of La Foye's six cases, two, or thirty-three per cent., saw well, two saw indifferently, and two received no benefit. Of Poyet's seven cases, two, or twenty-eight per cent., saw well, two saw imperfectly, one had a bare perception of light and two remained blind. Of Morand's six cases, three could see tolerably well and three remained as they were.

In 1754, was published in *Philosophical Transactions* a report of nineteen eyes operated on by Sharp of London. Of these he claimed "tolerable success" in one-half, although he admits that not a single one escaped severe inflammation. Of one hundred and thirteen operations at the *Hotel Dieu* in Paris, made from 1806 to 1810 inclusive, seventy by extraction, forty-three by displacement; nineteen, or twenty-seven per cent. of the extractions were successful, and twenty-four of the forty-three displacements were reported successful. Dr. Tartra who published these statistics, adds, "it is generally thought that two out of every five cases operated on for cataract recover their sight." At the *Charite* in Paris, Professor Roux operated in 1830–1–2–3 on 179 eyes with the following results, seventy-three or sixty-three per cent. recovered sight.

Of recent statistics, Knapp reports 200 cases operated upon by Von Graefe's method, with iridectomy, from November 1882 to June 1886, with the following results: One hundred and eighty-one, or ninety and one-half per

cent. are classed as *good,* in which acuity of vision was from perfect to not below 20-200, eleven cases, or five and one-half per cent. are classed *moderate,* in which vision remained not less than 3-200, eight cases, or four per cent. were failures, five of which retained only a perception of light.

A large access in the percentage of successful operations immediately followed Von Graefe's introduction of iridectomy as a part of either the flap or linear extraction, and a still greater step in this direction accompanied the modified linear operation. To-day it is safe to assume that not less than ninety-six per cent. of uncomplicated cataracts operated upon by skilled operators are successful. Doubtless a considerable part of this great gain was due to the introduction of anæsthesia which abolished pain and muscular spasm. But lately, the discovery of the local anæsthetic properties of cocaine still further greatly favored deliberation and attention to detail, upon which so much depends for perfect results in all operations for the removal of cataract.

TWO CASES OF APHONIA.

J. D. ARNOLD, A. M., M. D., San Francisco.

It seems impossible to determine from dissection and experiment alone, the functions of some of the smaller, but physiologically, most important muscles about the cords, and the confusion in this matter is only to be bettered by careful laryngoscopic observation of the unantagonized action of individual muscles in some forms of laryngeal paresis. In some text books the thyro-arytenoidei interni are described as tensors and in others as laxors of the vocal cords ; and directly opposite forms of paralysis are ascribed to impaired action of one and the same muscle. The difficulties of physiological experiment upon the voice-producing mechanism are, however, so great that any one who has been therein engaged will readily conceive how different observers may arrive at contradictory results.

Believing, however, that accurate observations of the various forms of throat paralysis are needed, not only to correct and amplify our knowledge of their etiology, but also to put upon a more exact footing the functional value of some of the muscles of the larynx, the following cases are reported somewhat in detail. The limited literature of this department of laryngology has been so often reviewed that I will not, as is the custom, preface these clinical notes with a mass of references. I am less inclined to do so, because as yet there has been no sufficiently specific and comprehensive classification proposed for laryngeal neuroses.

The following cases with the results of the treatment pursued, related with as little comment as may be, cannot fail to throw some light upon the peculiarly interesting subject which they illustrate.

CASE I.—Miss J——, aged 19, came to me in October, 1880, with this account of her case: In the fall of 1877 she had been confined to her bed for five weeks with a severe attack of diphtheria, during which her life had been despaired of, and tracheotomy proposed. Upon recovery it was found that she had become aphonic, and that speech was possible only in a faint, toneless whisper. Her medical attendant naturally looked upon the case as one of the ordinary paralytic sequelæ of diphtheria, and promised that in a few weeks the voice would return. After nearly six months had elapsed without any indication of improvement, she was sent to a specialist who took the same view of her case, but advised active treatment. For the next fourteen months galvanism and faradism were used, and strychnia in medium doses given subcutaneously. At the end of this long continued treatment not the slightest repair of voice had been effected. Both physicians then came to the conclusion that the affection of the larynx was irreparable, and the loss of voice permanent, and advised a discontinuance of all remedial efforts.

After another period of about a year, at the urgent solicitation of the parents, she came to me for an examination, but she was very much disinclined to undergo another course of treatment, since she believed her voice irrevocably gone, and appeared quietly resigned to the loss. In October I saw her for the first time, and found the larynx normal in development and healthy in color and contour. The respiratory excursions of the cords and arytenoids were natural in amplitude, and at each expiration the whole superior face of both cords came distinctly into view; upon attempted phonation, however, the left cord remained nearly immovable, whilst the right ad-

vanced slightly beyond the median line of the glottis. The patient from long practice had become an excellent subject for the laryngoscope, and without fatiguing her, I extended the first sitting over a space of nearly an hour, during which time I endeavored by various tests of mechanical irritation to provoke the lame cord to action, but without effect. At her second visit, a week later, I discovered that upon touching the inter-arytenoid space with the tip of a sound, short isolated cough acts were produced, at which times the cords met in the middle of the glottis for an instant before the expiratory effort, and further, that the *cough had tone.* Later I found that with very delicate manipulations of the arytenoids I could excite the action of the lame cord without producing cough, (that is, I could institute an imperfect cough act, the closure of the glottis making its appearance without being followed by the violent air expulsion which belongs to the act normally.)

Impressed with the belief that I had to do with a case of functional paresis which might be of a hysterical nature, and not a true diphtheritic paralysis, I prevailed upon my patient to submit to another effort at restoration of voice. I saw her regularly over four times each week; and since she appeared to be in robust health—menstruated timely and without pain, was well nourished, had rosy cheeks and vivacious spirits, I was left without any indication for recourse to *constitutional* remedies; the treatment adopted was therefore purely local. At each visit a very weak faradic current was applied; one pole upon the neck immediately under the left wing of the thyroid cartilage; the other was introduced into the left pyriform sinus; and her throat had grown so tolerant of instruments that she quickly learned to retain the laryngeal electrode ten or fifteen seconds at a time. The current was applied with short intermissions for twenty minutes, and immediately afterward the inter-arytenoid space lightly brushed with a delicate

whalebone sound. After this had been persevered in for about three weeks, the patient acquired the power of giving tone to the vocal *a* (German inflection), and as soon as this much was gained she was instructed to practice that sound for several hours each day. She had no difficulty in so doing if her efforts were confined to a low octave, but the voice soon tired and lost volume when essayed in a higher register. The other vowel sounds were added to her repertoire, and in two months after her first visit she could read aloud three hundred to five hundred words without fatigue. The voice gained in volume from day to day, but increase in compass was very slow; not until another month had elapsed could she distinctly enumerate tones in a register higher than the middle piano octave. Before this point was attained, treatment had been entirely discontinued, and her visits to me were entirely devoted to what might be called exercise in elocution. It is worthy of note that the vocable "*I*" was very difficult for my patient for a long time after the establishment of nearly normal voice, and she acquired the habit of speaking of herself in the third person—as children do. In February of 1881 she could sing as well as speak in a full clear tone, and the voice had regained all of its original compass. The cure remained permanent until November, 1883 (a period of nearly two years) when, after a powerful emotional impression, occasioned by an accident to her brother, she again lost her voice. The aphonia was this time not complete, and yielded to a few days treatment, and there has occurred no further relapse. In this case the result of an exclusively mechanical treatment and the subsequent relapses prove that the paralysis was purely functional, and that the muscular apparatus of the affected cord had undergone no considerable structural change even after three years of disuse.

Case II. A married woman, aged 43, came to me November 8, 1882. This patient has during the past four

years suffered from frequent attacks of sore throat accompanied by severe hoarseness. Seven months ago she contracted a cold attended by the usual loss of voice, but as this attack continued longer than ordinary, and brought with it a harassing cough, and great pain in swallowing, she sought the aid of a specialist; he told her at first that she had only an ordinary sore throat, and promised that she would be well in a few weeks. At the end of five months she had grown worse instead of better, and then her physician diagnosed malignant growth in the larynx and gave no hope of ultimate recovery.

Patient is a short, fleshy, sallow-faced woman, who speaks in a whisper, that is occasionally broken by rough gutteral tones. The mirror discovered the following appearances: Epiglottis somewhat depressed, and of a deep purplish color; right arytenoid and ventricular band dusky, but of normal contour; the right very red and slightly thickened; the left arytenoid was swollen to about twice its natural size and felt firm and unyielding to the sound; the left cord, visible only at its anterior third, was covered by a red, angry looking tumor, which seemed to spring from the ventricle. As far as a close and careful inspection could discern, there was no loss of continuity in the mucous membrane anywhere in the larynx. When the woman attempted to phonate, the tumor floated upon the ascending column of air, but the whole left side of the larynx remained immovable. At the second or third introduction of the mirror the tumor appeared to have grown larger and hid from view a greater portion of the cord. Again it grew smaller and exposed more of the cord, but whenever phonation was essayed it again grew and insinuated itself over the whole superior surface of the vocal band. I now confirmed my suspicion of a prolapsed ventricle by a successful effort to return it with the sound, and there came into view beneath, the cord unbroken on its surface, but red and tumefied like its fellow. The slightest cough, however, an effort to

produce voice, forced the ventricle into its former position. The paretic condition of the left cord was evidently due to the swelling of the arytenoid and an infiltration of the thyro-arytenoid muscle, and, perhaps, of the lateral crico-arytenoid of the same side. I found that after I had replaced the prolapsed ventricle, it remained visible, until a paroxysm of cough again expelled it. I found also that the act of deglutition did not completely extrude the sack, but that at each swallow the tumor would bulge forward and gradually sink back into its place until an act of cough or phonation entirely extruded the ventricle over the cord.

Upon strict inquiry into the woman's history, I learned that she had borne three healthy children, who were yet living, but that in the past seven years she had had five miscarriages; and although I could elicit no confession of former venereal disease, nor find upon her body anything confirmatory of any suspicion, the matter of the miscarriages induced me to give her the benefit of an anti-specific treatment. I accordingly gave her a pill containing mercuric proto-iodide gr. $\frac{2}{3}$, and opium gr. 1-5—three times a day. I saw her every day, and at each visit insufflated morphine, gr. $\frac{1}{4}$, with starch, and immediately thereafter replaced the ventricle, which always became prolapsed by the slight spasm caused by the ingress of the powder. I absolutely forbade all use of the voice. In about three weeks, and just as the mercury began to exhibit its physiological effects in a tainted breath and tender gums, the whole appearance of the larynx had changed markedly. Both cords and ventricular bands had regained their normal color—the left arytenoid was like its fellow in contour, and the excursions of the two sides of the larynx were nearly equal. Still at certain times extrusion of the ventricle followed cough or long-continued phonation. The patient could speak in a low, quiet, pure tone for some minutes, when suddenly the voice would grow hoarse and gutteral—the

sack being forced by the action of the muscles out upon the cord and dampening its vibration. For the mercury was now substituted pot. iodide, gr. xv. twice a day. All use of voice was strictly forbidden, and at each visit a few drops of tinct. iodine and glycerine were conveyed into the ventricle with a delicate cotton cannula. The sack would now remain in place for three and four days, and on December 23rd I had occasion for the last time to return it with the sound. Shortly after this the voice became and remained full, clear and strong—general health was better than it had been for five years previous, and the larynx gave a perfectly normal image both in respiration and phonation.

I believe this case, presenting such grave alterations of structure, without any ulceration whatever, to be unique in the history of syphilitic affections of the larynx.

EXPERT MEDICAL REPORT ON

ONE HUNDRED AND FIFTY-EIGHT INMATES

OF THE

INSTITUTION FOR THE DEAF AND DUMB AND THE BLIND AT BERKELEY, CAL.

By A. BARKAN, M. D., San Francisco, Prof. of Ophthalmology and Otology, Cooper Medical College, San Francisco.

At the commencement of the year 1884, the Board of Directors of the Institution for the Deaf and Dumb and Blind, at Berkeley, on motion of Dr. Woolsey, of Oakland, then one of their number, appointed an expert commission, consisting of Dr. W. F. Smith and myself, for the purpose of examining all the inmates then living in the institution; also all new applicants, as to their fitness for admission. The commission commenced work at Berkeley on the 23d of March, 1884. After the first visit to the institution; Dr. Smith resigned and left the State. I continued and concluded the work, and in January, 1885, submitted my first report to the Board of Directors. It embraced the examination of 158 inmates at the institution and of 18 applicants at my office.

The examination at the institution took place, as a rule, on Sundays. It extended over several months of that year, and was conducted with the assistance of Dr. Woolsey, in the presence of the Principal, Mr. Wilkinson, who devoted much attention to the matter. The work [illegible] all of scientific interest to the specialist, although

not an easy one to accomplish, as from the nature of the examination, an especial difficulty arose in having to converse with the patients by medium of a deaf and dumb interpreter. The work also was more laborious owing to its novelty; it would have been still more arduous had not Dr. Woolsey accompanied me each visit and rendered me great help, adding his knowledge as general practitioner, to the work of the specialist. We warmed up more and more as we progressed, and our methods of examination improved. It soon however became evident that an exhaustive insight into each patient's case could not take place in the time we had at our disposal. I was therefore justified in stating in my first report to the Directors that the work had only just commenced, and that with the records now in hand, added to those made by any future expert commission from thorough examinations of new applicants, material would be gathered together which could not fail to prove useful and interesting. The hopes, however, expressed by me were doomed to be frustrated, for shortly afterwards the Board of Directors *abolished* the expert commission, and with it disappeared the rule requiring every new candidate for admission to be examined by a specialist. The work undertaken had extended over more than one year; it brought me into contact with a large number of sufferers, and was replete with scientific suggestions and enquiries, not to be dismissed from me with the dismissal as expert, which I received—a dismissal quite unexpected, as was likewise my appointment. The material thus accrued from these investigations served me well in my lectures on the "*Blind*," and "*The Prevention of Blindness*," which formed two in the series of the popular Lane lectures; likewise, in the corner of my office stood the voluminous record book containing the results of my labor.

When the President of this Society, as well as the chairman of the special committee on ophthalmology c[illegible] teously invited me to contrib[illegible]

meeting, I remembered those records and concluded that a report of all the cases would prove scientifically interesting and practically useful.

With the excellent aid of Mr. Cope, my clinical assistant, we, after looking critically through each case recorded, grouped them together with all the data referring to each, and transferred them *seriatim* to the record sheets I present before you, under 28 different Tables for the deaf and dumb and eight different Tables for the blind. As an example of the plan, I will read you the headings of one of these Tables concerning the *deaf* and *dumb*, and of one concerning the *blind* from the large sheet. From these records a number of smaller Tables have been compiled, each one treating the material from a different scientific or practical standpoint. To this I shall again refer.

Table I contains 122 cases of deafmuteism, according to *causes*. In regard to this Table I agree with St. John Roosa, whose exhaustive examination of 147 deaf mutes, as published in his text book, has been very suggestive and a great help to me in the systemization of my work, in his remark "that it is as reliable as any that it seems possible to get from any institution, and that as far as the statements as to scarlet fever, measles, cerebro-spinal meningitis, mumps and syphilis (and I might add brain-fever), are concerned, the statement may be considered trustworthy. In my Table I likewise, coincide in his opinion that in the domain of congenital deafness, or such assigned causes as, falls on the head, fits, sickness, there exists great uncertainty as to the actual cause. A glance, however, at the percentage scale made from this Table may prove instructive. It shows that (using round numbers) in 36 per cent the trouble was congenital. As those cases of deaf mutism, where the cause is stated as unknown" amount to 13 per cent., they may with great [illegible]ility be considered as belonging to the con-[illegible]n, which would give a percentage of 49;

scarlatina, as cause for deafness shows 11½ per cent.; *spinal* and *cerebral meningitis*, if together, to about the same; *brain fever*, 8 per cent.; *measles*, *typhoid fever*, 3⅓ per cent. each. The list is filled out with *whooping-cough*, *hydro-cephalus*, *mumps*, *malaria*, *diphtheria*, *intermittent fever*, *simple fever*, *fits*, etc. So far as the congenital cases are concerned our Tables stand midway between those of Prof. Roosa, who had 33 per cent. in his examinatian, and Hartmann, who had 65 per cent. Had the expert commission not been discontinued, the cause of each, or of most of these cases, could have been ascertained in the future, for, as a rule the youthful candidates for admission are accompanied by anxious parents or guardians, from whom by close questioning, or from information obtained from the physician who treated the children at the time of their illness, an exact result might have been obtained.

Table II. enables us to ascertain how many of the 122 deaf mutes examined could hear the sound of the tuning fork of C^2 which I used, either by aerial, or by bone conduction, perceiving the sound of the fork when applied over the mastoid. Only after much trouble by tests and counter-tests and discussions with the Principal, Mr. Wilkinson, whose opinion in this particular point was entitled to great weight, was it possible to conclude that most of the statements made to us by the deaf and dumb pupils, although not made intentionally to mislead us, were entirely unreliable, for the most part positively negative. Thus we found that 97 pupils had neither aerial nor bone conduction on either side. This result is greatly at variance with the one found by Rossi in Rome and Roosa in New York.

The remark made by Prof. Roosa* in case 113 of his records, reads thus: "The tuning fork on mastoid seems to make very little impression as shown in his face. Says it feels the same when the tuning fork is placed on his hand as when placed on mastoid." *But as usual when one says he feels it, it is recorded as bone conduction.* Evi-

* Treatise on Diseases of the Ear. 1885.

dently from this observation we must conclude that Roosa meant to convey *his* standard for bone conduction, and thus it is explained why he found bone conduction present on either side in 74 cases out of 118. With all due respect for so good an authority, I must beg to differ from him in the interpretation of this symptom, for amongst the pupils I examined there was one, 22 years of age, exceedingly bright, very well educated (case 104) who was most emphatic in asserting that the vibrations of the tuning fork whether applied to hand or bones of the head, were felt as mechanical vibrations on hand and head alike. Judging from this and other cases, we concluded that *feeling* vibrations is not *hearing* them, and that it is better, if err we must, to err on the negative side, so the Table was made accordingly. We made no examinations with the speaking tube.

Each table, from III up to XXIII contains the records of all cases belonging to the group which includes conditions of the drum head, tuning fork test, and age of patients at the time of becoming deaf.

Table XXIV deserves more than a passing notice; it shows the mental peculiarities of the 122 deaf and dumb, out of which number 7 were very bright, 47 bright, 57 average, 10 dull and 1 weak-minded; thus 97 per cent. possessed average mental qualities, a fact that appeared to us rather surprising, but one much to be rejoiced in, for instead of finding stupid, poorly-nourished, ill-tempered children, they were as healthy looking, well-behaved and merry a lot as any fond parent might like to see in his own family (save number and deafmuteism).

In Table XXV, showing family history and consanguinity in the 122 cases, some important facts are brought forward respecting hereditary development of deafmuteism. In 37 per cent., different members of the same family were either *totally* deaf and dumb, *partly* deaf, or insane. Direct heredity could be demonstrated in only 2 cases, where the parents are stated to have

been partially deaf; in case 46, the patient's brother and sister were partially deaf—semi-mutes, deafness acquired. In case 23 the father was partially deaf, the boy resembled his father; in neither of those two cases did consanguinity of parents exist, nor were either of them deaf or dumb. Case 116 is an important one, showing not only the great force of an hereditary tendency acting in a direct line through *three* generations, but also its development at the same age in each case. This case, that of a boy 15 years of age when examined, could hear with the right ear the loudest voice, but was entirely deaf with the left ear. He had questionable air and bone conduction, and normal drumhead; his grandfather became deaf and dumb at 6 years of age from scarlatina; he had two daughters who became deaf and dumb at 6 years of age; one of them was this boy's mother; *he* became deaf and dumb gradually in the same manner.

In 30 cases (24 per cent.) either a brother or sister of the case examined was a deaf mute, sisters twice as often as brothers. In case No. 17 there was a sister and nephew deaf and dumb, one aunt insane; in case No. 18 two maternal aunts and one uncle were deaf; in case No. 19, the brother, younger sister and deceased sister were deaf and dumb; case No. 40 had a deaf sister, a congenital deaf mute brother and a deaf mute cousin. In case No. 29 there are 7 children in the family, 5 of whom are deaf and dumb. Consanguinity from first cousins downward showed itself in 9 cases, or as the percentage of relationship in marriage is according to Hartman in Germany and France, 1—2. (I have no statistics on this point for the United States.) Our figures appear to correspond with that author's opinion, that marriages amongst relatives favor the development of deaf muteism. I may be permitted to cite an interesting instance of the influence of consanguineous marriages, mentioned by Hartman, in his excellent treat-

of a deaf and dumb child in one of the Berlin institutions, who had five deaf and dumb brothers and sisters, without a single case of deaf muteism having occurred in the previous generation; but it was ascertained that parents as well as grandparents and great grandparents had been cousins; *three* times the damaging cause had to act in order to cause deaf mutism in this terrible manner.

From the very first we were struck by the comparatively great number of deaf and dumb pupils showing what is generally termed Hutchinson's teeth, that is a set of permanent teeth peculiar for their smallness, bad color and vertically notched edges of the upper central incisors, often accompanied by a sunken bridge of the nose, prominent frontal sinuses and a peculiarly flabby skin. *No less than 23 per cent. of the cases examined presented more or less characteristically this group of symptoms, from which it would appear that inherited syphilis played a most important part in the ætiology of deafmuteism.* In the works at my disposal I have found no mention of this, and should be glad to call the attention of investigators to this point.

Catarrh of eustachian tubes, granular and simple pharyngitis and hypertrophied tonsils were found in 20 per cent. of patients examined.

Out of the total of 122, 73 were males and 49 were females—of whom 1 female was a Jewess and 6 males were Jews.

Out of the 36 cases of double blindness, there were 17 males and 19 females—1 male was a Jew.

Finally, Table XXVII shows the result that out of the 122 cases examined, 99, or 81 per cent. of all were incurable. In 18 cases, or 15 per cent., it seems *possible* that complete deaf muteism might have been prevented—we count in here 14 cases of scarlatina and 4 cases of measles. Although in these general affections purulent otitis media is of a severe type, there is no denying that proper attention is not always paid by the general practitioner to the

ear complication often arising, the necessary treatment is in many cases greatly neglected, even looked upon as undesirable by many physicians and parents.

Gradually, however, a better understanding of the importance of these cases and of their efficient speedy treatment is beginning to dawn upon the profession, and I feel sure that time will greatly lessen the number of deaf and dumb incurable from these causes.

In concluding this report I cannot do better than cite Prof. Roosa's eloquent appeal on behalf of our unfortunate fellow creatures in the following words: "There is certainly no peculiar treatment necessary for the deafness of young children, which renders them mute because they cannot learn to imitate speech. I cannot abstain from alluding to the lingering remains of the barbarism of the past centuries, which neglects the care of the ulcerated membrana tympani, and the swollen throats of the poor mutes who suffer from chronic suppuration and catarrh of the middle ear. Although the educational wants of deaf mutes are now attended to, their medical treatment is sadly neglected in the asylums and schools of our country as well as in their homes. It was not until the 17th century that the deaf mutes were thought worthy of an education. The 20th century will probably arrive before every school or asylum for these unfortunates has in attendance a physician who fully understands how to examine and treat a diseased ear. These schools are not hospitals, it is true, yet there is always in them a large proportion of young patients still suffering from a suppurative disease, which although it has fully destroyed the *hearing*, is not stayed, but often goes on and destroys *life*."

In the report on 36 cases of double blindness at the Institution for the Deaf, Dumb and Blind in Berkeley, Table I gives the causes as stated by parents or guardians. Nine cases, or 25 per cent., of purulent ophthalmia of the new born head the list; then follow blind-

ness from brain fever and unknown causes, each 11 per cent.; granular conjunctivitis 8 per cent.; spinal meningitis, malaria, smallpox, rheumatism, syphilis, injuries, poison oak, and megalophthalmus, one case each. What has been said concerning the unreliability of the statements made by parents or guardians as to causes of deafness, applies with equal truth to this table. Expert examination of each new case is required to arrive at any correct knowledge. It is more than likely that some of the cases classed under "congenital" or "cause unknown" belong to ophthalmia neonatorum; likewise, that injuries to the eye have caused more than one case of blindness, not only by direct traumatism, but by sympathetic affection of the other eye. The case of poison oak in all probability was one of acute trachoma or purulent ophthalmia.

Table II shows the parts of the eye affected, and Table III the age and sex in 36 cases of double blindness, and require no particular remarks.

Table IV is of importance, although consisting of only three lines. It points out that of the 36 cases examined, 20 or 55 per cent. were unavoidably and permanently blind. In nine cases, or 25 per cent., blindness might have been prevented, and in seven cases, or 19 per cent., sight might have been improved. The proper interpretation of these figures, and a thorough analysis of the cases with the deduction to be drawn from them would occupy more space and time than can be allowed to the present report, though it might be discussed at some later time at greater length; there is one fact, however, which strikes us most forcibly, and that is that in the nine cases of purulent ophthalmia, blindness could have been prevented with certainty, yes, with *certainty*, for these cases, however severe, are nearly always curable, with no, or only a slight detriment to the eye, if the treatment is *prompt* and of the *right kind.* A thorough and methodical cleansing of the affected eye, by removal of the infectious

purulent secretion, will in itself accomplish much; combined with incessant application of ice cold compresses, and use of a 2 to 3 per cent. solution of nitrate of silver applied once a day to the well everted upper and lower lids, will I believe in most cases insure complete recovery; probably my confreres will bear me out in this assertion that failure is a great exception.

During the last few years a great reform in the prophylactic treatment of this disease has taken place in many of the European lying-in asylums. The process generally adopted is known as Crede's method and is the simplest. It consists of a thorough cleansing of the eyes with clean water, sponge or rag, immediately after ligature of the umbilical cord, and the instillation of a drop of 2 per cent. solution of nitrate of silver into each eye, the eyes then can be left untouched. By following this method the percentage of cases of purulent ophthalmia has diminished to such an extent, that a case of ophthalmia neonatorum in these institutions is of very rare occurrence.

There can be no excuse for neglecting this perfectly harmless preventive measure in our public institutions, and I think the time is not far distant when all conscientious obstretricians in their private practice will make a vaginal examination previous to confinement, and whenever leucorrheic secretions are present will not be satisfied with a simple cleansing of the genital parts, but will also make use of Crede's application. Our blind asylums will then not contain 25 per cent. of unfortunates who might have enjoyed the blessings of sight, and medicine will be enabled to boast of having conferred another boon upon humanity, one worthy to be mentioned with the introduction of vaccination, which reduced the number of blind from smallpox, in France, from 35 per cent. to 7 per cent.; in Germany where vaccination is compulsory, from 35 per cent to 2 per cent.

Out of seven cases mentioned, case No. 2 and case No. 3 particularly claim attention; the latter is one of a lad

18 years of age, who had been in the institution for several years; he had lamellar cataract of both eyes, and could count fingers at two feet. On my recommendation he was given into my care for treatment. I removed successfully the cataract by needling, and cleared the pupils from the obstacles to the passage of light. It was only after this had been accomplished that the ophthalmoscope revealed an atrophic condition of the optic nerves and blood vessels. Nevertheless sight was improved through removal of cataracts; the boy could count fingers at from 4 to 5 feet, could with the aid of cataract glasses, of course, tell the time of day by his watch, and was, I believe, able to guide himself about—a power not to be underrated. It is certain that the boy should never have been admitted into an institution for the incurably blind, at any rate not without a previous operation. Valuable time was lost, and although it is just possible that the atrophic condition of the optic nerves was also congenital, it is more probable that amblyopia set in owing to the non-use of the eyes, and that an earlier operation might, through use of the eyes, have materially improved the sight. The other case, No. 2, is a parallel one—that of a boy seven years of age, who was first refused admission, and then admitted under the new rule; he had congenital cataract of both eyes, and could see motions of the hand. On the urgent solicitation of his mother, poor in every sense of the word, and of Dr. Woolsey, the boy was entrusted to me as expert commissioner, the cataracts were removed by absorption, the pupils cleared and his sight improved, but I am unable to state to what extent, for with the exception of a grateful letter from the child's mother, sometime later, I heard nothing more about him. To substantiate my opinion that the sight of these two patients might have been improved much more had they been operated on earlier, and in consideration of the great importance of the subject, I will cite one authority, and one only, but it is the

voice more entitled to be heard than any other, a voice which up to a few months ago, and for the last forty years has been sweeter than music to thousands whose sight he has restored, who performed more than 5,000 cataract operations, with the wonderfully small loss of only 2 to 3 per cent. I refer to the gentle heart, keen eye and sure hand of the late lamented Prof. von Arlt, of Vienna. In an article, "Hints on Cataract Extraction," the last one, I think he ever wrote, in Graefe's *Archives of Ophthalmology* (Vol. XXXI., Section III, page 5), he remarks: "What influence does the long existence of a cataract exert upon the eye, and more especially on the functional power of the retina? If a cataract first develops itself in boyhood or later, as for instance after an injury, when there exists an hereditary tendency, or in manhood, it may continue over twenty years or more without lessening the favorable prognosis as regards the retina. Not so with those cataracts which are either congenital or exist from the first years of life. These interfere considerably with the function of the retina, and disable those afflicted from learning to read; they develop a condition of torpor of the retina which may be designated as *amblyopia exanopsia*, or weak-sightedness from disuse. This torpid condition of the retina increases as the cataract lasts on, but does not lead to amaurosis. We know that the greater number of such cataract patients, operated upon only at the time of puberty or later, notwithstanding the equally favorable mechanical success of the operation, do not regain as good vision as those who have been operated on in boyhood or childhood."

If it has been ascertained that an operation for cataract is imperative, it should be performed when the children are quite young; it is even best when they are still nursing. But who, I ask, is to ascertain this? Who is to prevent those children from being admitted into a blind asylum, without even a chance for them to regain their sight by an operation which is often successful and nearly

always harmless? Who is to treat the many affections of both eyes and ears, supervening on the development of blindness or deaf muteism, which these poor children take with them into the asylum, and often never get rid of? Most emphatically an expert would and should do all this, and examine each candidate for admission, thus ascertaining whether the case is curable or improvable, and with him should rest the medical supervision of their eyes, ears, throats. Let us hope that when the twentieth century comes, every school, every asylum will have attached to it a properly qualified medical expert. I say this with a feeling of deepest sympathy for the afflicted, innocent children, and with the desire that help may be extended to them, even in the asylum for the blind. Possibly then, a greater number than at present would be enabled to appreciate Schiller's beautiful words:

> "O the eyes' light, of all the gifts of Heaven
> The dearest, best! From light all beings live,
> Each fair created thing—the very plants—
> Turn with a joyful transport to the light."

TABLE I.

One hundred and twenty-two cases of Deaf Muteism. (Cause stated by parent or guardian).

Congenital	44
Scarlatina	14
Spinal Meningitis	10
Brain Fever	10
Cause Unknown	9
" " probably congenital	8
Cerebro-spinal Meningitis	4
Typhoid Fever	4
Measles	4
Fall on head	3
Fever	2
Whooping-cough	1
Injuries to head	1
Mumps	1
Hereditary	1
Hydrocephalus	1
Malaria	1
Diphtheria	1
Intermittent Fever	1
Fits	1
Sickness	1
	122

TABLE II.

Results of examination with the tuning-fork of one hundred and twenty-two Deaf Mutes.

There was no aerial or bone conduction on either side in	97
Bone and aerial conduction on both sides	1
Bone and aerial conduction on one side only	2
Bone and aerial conduction on one side, no bone conduction on the other	1
Aerial conduction on one side, no bone or aerial conduction on the other	1
Questionable bone and aerial conduction of both sides	12
Questionable aerial conduction, and no bone conduction	8
	122

TABLE III.

Deafness said to be congenital. Condition of membrana tympani. (44 cases, 88 ears).

Normal color and light spots	72
Retracted	10
Dull	6
	88

TUNING-FORK TEST.

No aerial or bone conduction	70
No bone conduction, questionable aerial conduction	12
Bone conduction, questionable aerial conduction	2
Questionable aerial and bone conduction	4
	88

TABLE IV.

Scarlatina being cause of Deafness. Condition of membrana tympani. (14 cases, 28 ears).

Cicatricial	10
Perforate and ulcerating	4
" no discharge	4
Normal	4
No record	2
Absent	1
Chalky incrustations	1
Retracted	1
Irregular light spot	1
	28

TUNING-FORK TEST.

No aerial orbone conduction	18
Aerial conduction	3
Bone and aerial conduction	2
Bone conduction	1
Questionable aerial and bone conduction	4
	28

AGE OF PATIENTS AT TIME OF BECOMING DEAF.

Infancy	1
From 2 to 3 years old	4
" 3 to 4 "	3
" 4 to 5 "	2
" 5 to 6 "	1
" 6 to 7 "	1
" 7 to 8 "	1

TABLE V.

Cause unknown. Condition of membrana tympani. (9 cases, 18 ears).

Normal	14
Dull and retracted	4
	18

TUNING-FORK TEST.

No aerial or bone conduction	10
Questionable aerial or bone conduction	8
	18
Age, from 1 to 2 years	2
" " 2 to 3 "	1
" not known	6

TABLE VI.

Cause unknown; probably congenital. (8 cases, 16 ears). Condition of membrana tympani.

Normal	14
Slightly retracted	2
	16

TUNING-FORK TEST.

No aerial or bone conduction	12
Questionable aerial or bone conduction	4
	16

TABLE VII.

Spinal meningitis cause of Deafness. Condition of membrana tympani. (10 cases, 20 ears).

Normal	17
Retracted	2
Dull	1
	20

TUNING-FORK TEST.

Neither aerial nor bone conduction	20
Age, infancy	2
" from 1 to 2	4
" " 2 to 3	2
" " 3 to 4	1
" " 4 to 7	1
	10

TABLE VIII.

Cerebro-spinal meningitis cause of Deafness. Condition of membrana tympani. (4 cases, 8 ears).

Normal	8
TUNING-FORK TEST.	
Neither aerial or bone conduction	8
Age, infancy	1
" from 1 to 2	2
" " 2 to 5	1

TABLE IX.

Brain Fever cause of Deafness. Condition of membrana tympani. (10 cases, 20 ears).

Normal	16
Retracted	4
	20
TUNING-FORK TEST.	
No aerial or bone conduction	18
Aerial and bone conduction	2
	20
Age, infancy	1
" from 1 to 2	4
" " 2 to 3	3
" " 3 to 4	1
" " 4 to 7	1
	10

TABLE X.

Typhoid Fever cause of Deafness. Condition of membrana tympani. (4 cases, 8 ears).

Normal	4
Retracted	4
	8
TUNING-FORK TEST.	
No aerial or bone conduction	8
Age, infancy	1
" 2 years	1
" 4 "	1
" not stated	1

TABLE XI.

Measles cause of Deafness. Condition of membrana tympani. (4 cases, 8 ears).

Normal	3
Absent	2
Cicatrix	1
Perforate and ulcerating	1
Retracted	1
	8

TUNING-FORK TEST.

Neither aerial nor bone conduction	8
Age, from 1 to 2	2
" " 2 to 6	2

TABLE XII.

Fall on head cause of Deafness. Condition of membrana tympani. (3 cases, 6 ears).

Retracted	4
Normal	2
	6

TUNING-FORK TEST.

No aerial or bone conduction	6
Age, infancy	2
" 18 months	1

TABLE XIII.

Fever cause of Deafness. Condition of membrana tympani. (2 cases, 4 ears).

Normal	2
Dull and retracted	2
	4

TUNING-FORK TEST.

Neither aerial nor bone conduction	4
Age, 2 years	1
" 5 "	1
	2

TABLE XIV.

Whooping-cough cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Normal 2

TUNING-FORK TEST.

Neither aerial nor bone conduction..... 2

Age .....2 years.

TABLE XV.

Injuries to head cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Normal 2

TUNING-FORK TEST.

Neither aerial nor bone conduction..... 2

Age. .....12½ years.

TABLE XVI.

Mumps cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Dull and retracted 2

TUNING-FORK TEST.

Both aerial and bone conduction 2

Age .....10 years.

TABLE XVII.

Hereditary cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Normal..... 2

TUNING-FORK TEST.

Both aerial and bone conduction 1
Neither aerial nor bone conduction..... 1
—
2

Age .....5 years.

TABLE XVIII.

Hydrocephalus cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Normal 2

TUNING-FORK TEST.

Neither aerial nor bone conduction..... 2

Age ..... 12½ years.

TABLE XIX.

Malaria cause of Deafness. Condition of membrana tympani.

Normal 2

Neither aerial nor bone conduction..... 2

Age.....3 years.

TABLE XX.

Cause of Deafness, Diphtheria. Condition of membrana tympani. (1 case, 2 ears).

Normal 2

Aerial conduction, no bone conduction 2

Age .....2 years and 4 months.

TABLE XXI.

Intermittent Fever cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Normal..... 2

TUNING-FORK TEST.

Aerial conduction, no bone conduction..... 2

Age .....20 months.

TABLE XXII.

Fits cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Opaque and retracted 2

TUNING-FORK TEST.

Neither aerial nor bone conduction..... 2

Age .....Infancy.

TABLE XXIII.

Sickness said to be cause of Deafness. Condition of membrana tympani. (1 case, 2 ears).

Normal	2

TUNING-FORK TEST.

Neither aerial nor bone conduction	2
Age	22 months.

TABLE XXIV.

Showing mental peculiarities in one hundred and twenty-two Deaf Mutes.

Very bright	7
Bright	47
Average	57
Dull	10
Weak-minded	1
	122

TABLE XXV.

Showing (*a*) family history and (*b*) consanguinity in one hundred and twenty-two Deaf Mutes.

(*a*)—FAMILY HISTORY.

Paternal grandfather deaf and dumb	1
Maternal grandmother deaf and dumb	1
Parents partially deaf	2
Sister deaf and dumb	20
Brother deaf and dumb	10
Sister weak-minded	1
Uncle deaf and dumb	2
Paternal aunt deaf and dumb	1
Maternal aunt deaf and dumb	2
Uncle insane	1
Cousin deaf and dumb	3
Nephew deaf and dumb	1
	45

(See foot-note Case 115).

First cousins	2
Second "	4
Third "	1
Cousins	1
Grand parents were cousins	1
	9

TABLE XXVI.

Showing constitutional tendencies in one hundred and twenty-two Deaf Mutes.

Hutchinson's teeth	23
Prominent frontal eminences and syphilitic nose	6

23 = 18.85 per cent.
6 = 4.91 per cent.

23.76 per cent.

TABLE XXVII.

Race peculiarities.

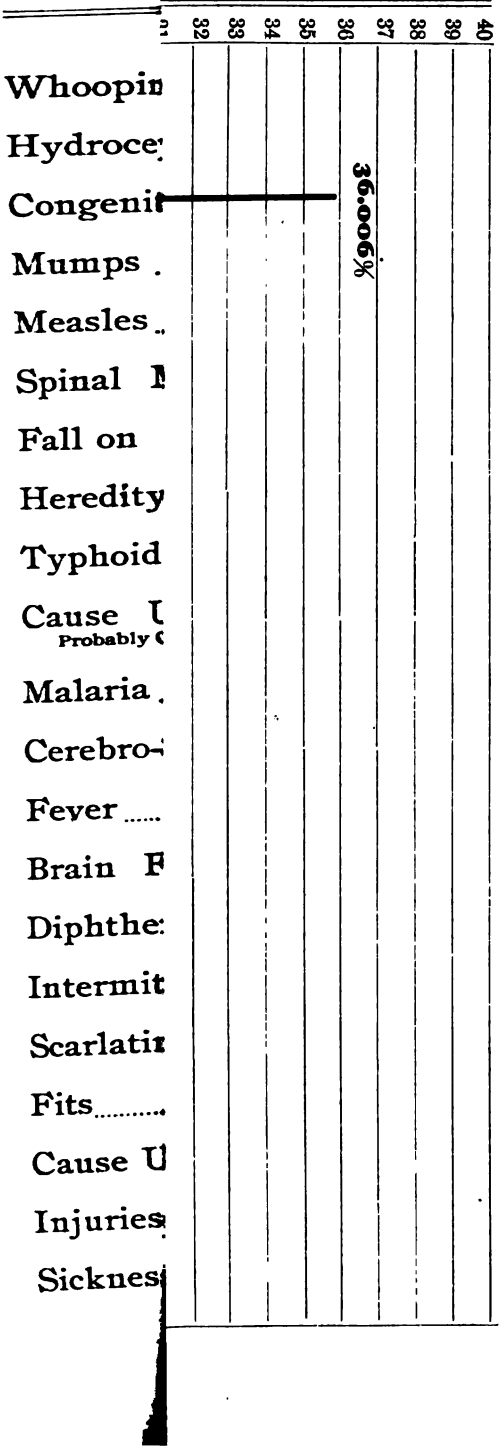
Christians	115 = 94.26 per cent.
Jews	7 = 5.73 per cent.

TABLE XXVIII.

Showing those permanently Deaf, those that might have been prevented, and those that could be improved in one hundred and twenty-two Deaf Mutes.

Permanently deaf	99
Might have been prevented	19
Improvable	4
	122

D causes.


32
33
34
35
36
37
38
39
40
Whoopin
Hydroce
Congeni
Mumps
Measles
Spinal
Fall on
Heredity
Typhoid
Cause
Probably
Malaria
Cerebro-
Fever
Brain
Diphthe
Intermit
Scarlati
Fits
Cause
Injuries
Sicknes
36.006%

by
Op
Co
Ca
Bu
Go
M
Sp

I
C
C
I
I
(

TABLE I.

Thirty-six cases of Double Blindness. (Cause stated by parents or guardians).

Ophthalmia Neonatorum	9	Malarial Fever	1
Congenital	8	Small Pox	1
Cause Unknown	4	Rheumatism	1
Brain Fever	4	Syphilis	1
Granular Conjunctivitis	3	Poison Oak	1
Megalophthalmus	1	Injury to Eye	1
Spinal Meningitis	1		

TABLE II.

Showing parts of the eye affected in thirty-six cases of Double Blindness. (36 cases, 72 eyes).

Cornea	24	Sclerotic	2
Optic Nerve	14	Retina	1
Eyeball	16	Iris	1
Lens	10		—
Choroid	4		72

TABLE III.

Showing cause, age, and sex in thirty-six cases of Double Blindness.

Congenital	8
Male	4
Female	4
Ophthalmia Neonatorum	9
At Birth, Male	5
" Female	4
Cause Unknown	4
Male	2
Female	2
Age from 1 to 2 years	1
" " 4 to 5 "	1
" " 5 to 6 "	1
" not given	1
Brain Fever	4
Male	2
Female	2
Age from 4 to 5	1
" " 5 to 6	2
" " 6 to 13	1
Granular Conjunctivitis	3
Male	2
Female	1
Age from 3 to 4	1
" " 4 to 6	1
" " 6 to 10	1
Spinal Meningitis	1
Male, 6 years	1
Malaria	1
Female, 7 years	1
Small Pox	1
Female, 2 years	1
Rheumatism	1
Female, age not known	1
Syphilis	1
At Birth, Female	1
Poison Oak	1
Male, 8 years	1
Injury to eye	1
Male, 8 years	1
Megalophthalmus-congenitus	1
Male	1

TABLE IV.

Showing family history and consanguinity in thirty-six cases of Double Blindness.

Father and Sister Insane	1	Third Cousins	1
Sister Blind	2	19.44 per cent.	
Brother Deaf and Dumb	2	Race, Jew	1
Sister and Brother Paralyzed	1		

TABLE V.

Showing constitutional characteristics in thirty-six cases of Double Blindness.

Hereditary syphilis	1
Hutchinson's teeth and syphilitic forehead	5
16.66 per cent.	

TABLE VI.

Showing mental peculiarities in thirty-six cases of Double Blindness.

Bright	6
Average	27
Dull	3

TABLE VII.

Showing those permanently blind, those that might have been prevented, and those that may be improved, in thirty-six cases of Double Blindness.

Permanently blind	20=55.55 per cent.
Preventable	9 =25.00 per cent.
Improvable	7=19.44 per cent.

Spinal Men

Ophthalmia

Malaria .....

Small Pox.....

Cause Unkn

Rheumatism

Syphilis .....

Congenital ..

Poison Oak..

Injury to E

Granular C

Brain Fever

Megalophth

122 CASES OF DEAFMUTEISM

EXAMINED AT THE

INSTITUTION FOR THE DEAF AND DUMB, AND THE BLIND

AT

BERKELEY, CAL.

1884

BY A. BARKAN, M. D.

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared.	Amount of Hearing.	Air Conduction.	Bone Conduction.	Condition of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Prev't'ble	Family History and Consanguinity.	Remarks.
1	143	10 m Jew	Congenital	None	None	None	Normal	No	No	Grand parents were cousins	Hutchinson's teeth and prominent frontal sinuses
2	66	11 m	Congenital	None	None	None	Dull and retracted	No	No	Has an older sister who is a deaf mute	—
3	67	9 m Jew	Congenital	None	None	None	Normal	No	No	Brother and cousin deaf mutes; brother in institution	—
4	69	12 m	Congenital	None	None	None	Greatly retracted; no light spot	No	No	Younger sister deaf mute	—
5	74	8 m	Congenital	None	None	None	Normal	No	No	None	—
6	78	15 m	Congenital	None	None	None	Normal	No	No	Sister deaf and dumb	—
7	79	16 m	Congenital	None	None	None	Normal	No	No	None	—
8	80	13 m	Congenital	None	None	None	Normal	No	No	None	—
9	81	15 m	Congenital	None	None	None	Normal	No	No	None	—
10	84	10 m	Congenital	None	None	None	Normal	No	No	None	Teeth notched
11	86	14 m	Congenital	None	None	None	Normal	No	No	First cousins	Teeth irregular and separate
12	90	7 m	Congenital	None	None	None	Dull; no light reflex	No	No	None	Teeth slightly notched

13	98	14 m	Congenital	None	None	None	Slightly dull	No	No	Sister deaf and dumb; second cousins	—
14	101	14 m Jew	Congenital	None	None	None	Normal	No	No	Has a sister in institution who is deaf and dumb	—
15	103	18 m Jew	Congenital	None	None	None	Normal	No	No	Brother deaf and dumb; second cousins	—
16	105	16 m	Congenital	None	None	None	Normal	No	No	Brother and cousin deaf and dumb	—
17	106	14 m	Congenital	None, except tuning-fork in front of ears	?	None	Retracted	No	No	Has a sister and nephew deaf and dumb; his mother had one sister insane, and another deaf and dumb	—
18	107	15 m	Congenital	None	None	None	Dull	No	No	Has two maternal aunts and one uncle deaf	—
19	110	17 m	Congenital	Hears tuning-fork through the air	?	None	Normal	No	No	Brother and younger sister and deceased younger sister deaf and dumb	—
20	113	14 m	Congenital	Hears medium tone of voice, but lacks appreciation	?	None	Both opaque; chalky deposits in right	No	No	None	—
21	116	17 m	Congenital	Hears loud voice—highest tone	?	?	Normal	No	No	None	—

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared.	Amount of Hearing.	Air Conduction.	Bone Conduction.	Condition of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Prev't'ble	Family History and Consanguinity.	Remarks.
1	143	10 m Jew	Congenital	None	None	None	Normal	No	No	Grand parents were cousins	Hutchinson's teeth and prominent frontal sinuses
2	66	11 m	Congenital	None	None	None	Dull and retracted	No	No	Has an older sister who is a deaf mute	—
3	67	9 m Jew	Congenital	None	None	None	Normal	No	No	Brother and cousin deaf mutes; brother in institution	—
4	69	12 m	Congenital	None	None	None	Greatly retracted; no light spot	No	No	Younger sister deaf mute	—
5	74	8 m	Congenital	None	None	None	Normal	No	No	None	—
		15 m	Congenital	None	None	None	Normal	No	No	Sister deaf and dumb	—
			Congenital	None	None	None	Normal	No	No	None	—
			genital	None	None	None	Normal	No	No	None	—
			genital	None	None	None	Normal	No	No	None	—
			genital	None	None	None	Normal	No	No	None	Teeth notched
			Congenital	None	None	None	Normal	No	No	First cousins	Teeth irregular and separate
			Congenital	None	None	None	Dull; no light reflex	No	No	None	Teeth slightly notched

			ongenital	None	None	None	Slightly dull	No	No	Sister deaf and dumb; second cousins	—
			ngenital	None	None	None	Normal	No	No	Has a sister in institution who is deaf and dumb	—
			ital	None	None	None	Normal	No	No	Brother deaf and dumb; second cousins	—
			nital	None	None	None	Normal	No	No	Brother and cousin deaf and dumb	—
		4 m	Congenital	None, except tuning-fork in front of ears	?	None	Retracted	No	No	Has a sister and nephew deaf and dumb; his mother had one sister insane, and another deaf and dumb	—
18	107	15 m	Congenital	None	None	None	Dull	No	No	Has two maternal aunts and one uncle deaf	—
19	110	17 m	Congenital	Hears tuning-fork through the air	?	None	Normal	No	No	Brother and younger sister and deceased younger sister deaf and dumb	—
20	113	14 m	Congenital	Hears medium tone of voice, but lacks appreciation	?	None	Both opaque; chalky deposits in right	No	No	None	—
21	116	17 m	Congenital	Hears loud voice—highest tone	?	?	Normal	No	No	None	—

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared.	Amount of Hearing.	Air Conduction.	Bone Conduction.	Condition of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Prev't'ble	Family History and Consanguinity.	Remarks.
22	119	16 m	Congenital	Can hear ordinary voice, but cannot understand	?	?	Normal	No	No	Younger brother deaf and dumb	Should be instructed in articulation
23	124	16 m	Congenital	None	None	None	Normal	No	No	Father partially deaf; the boy resembles his father	—
24	125	12 m	Congenital	None	None	None	Normal	No	No	None	—
25	136	11 m	Congenital	Hears only loudest sounds	?	None	Normal	No	No	Has a sister in the institution, congenitally deaf	—
26	142	11 m	Congenital	None	None	None	Retracted	No	No	None	—
27	29	15 f	Congenital	Hears tick of 60-ft. clock in contact with auricle and loudest voice	?	?	Normal	No	No	Has a sister in the institution, who is a deaf mute	—
28	31	12 f	Congenital	Hears tick of 60-ft. clock in contact with auricle and medium loud voice in 3-ft., without watching the face; ordinary conversation in usual speaking distance is not heard	Yes	Yes	Slightly retracted	Amenable to considerable improvement by proper treatment		None	—

29	36	19 f	Congenital	None	None	None	Normal	No	No	Seven children in the family; five are deaf and dumb; two can speak	—
30	37	16 f	Congenital	None	None	None	Normal	No	No	Paternal Grandfather deaf and dumb	—
31	46	12 f	Congenital	None	None	None	Retracted	No	No	Had a brother, congenital deaf mute	—
32	51	14 f	Congenital	None	None	None	Normal	No	No	Has an old brother, congenital deaf mute; first cousins	—
33	50	8 f	Congenital	None	None	None	Normal	No	No	None	—
34	52	9 f	Congenital	None	None	None	Normal	No	No	None	Very large teeth, with tendency to notching
35	53	12 f	Congenital	None	None	None	Normal	No	No	None	—
36	55	8 f	Congenital	Nearly total deafness; perceives vibrations of tuning-fork with right ear; cannot hear loud voice	Yes	Yes	Normal	No	No	Is weak-minded, and has another sister who is weak-minded	Hutchinson's teeth
37	56	11 f	Congenital	None	None	None	Normal	No	No	None	—
38	57	9 f	Congenital	None	None	None	Normal	No	No	Second cousins	Teeth slightly notched

No.	Page in Record	Age, Sex, and Race	Cause stated by parents or guardians, and age at which they say deafness appeared.	Amount of Hearing	Air Conduction	Bone Conduction	Condition of Membrana Tympani	[illegible]	[illegible]	Family History and Consanguinity.	Remarks.
39	129	10 f Jew	Congenital	None	None	None	Dull	No	No	Brother deaf and dumb in institution	Hutchinson's teeth
40	139	16 f	Congenital	Hears loudest sounds	?	?	Normal	No	No	Has a deaf sister, a congenital deaf mute brother and a deaf mute cousin; second cousins very much alike in disposition	—
41	155	6 f	Congenital	None	None	None	Normal	No	No	Cousins	—
42	165	7 f	Congenital	None	None	None	Normal	No	No	None	—
43	40	16 f	Congenital	None	None	None	Normal	No	No	Has a younger brother who is a deaf mute	—
44	33	6½ f	Congenital	None	None	None	Normal	No	No	Has a deaf and dumb brother in the asylum; five other children entirely healthy	—
45	62	13 m	Scarlatina; 2½ years	None	In right ear	None	Cicatrix in right drum-head; left, irregular light spot	No	?	—	—

46	63	17 m	Scarlatina; 7 years	Cannot hear loudest voice; deaf, but speaks	In right ear	In right ear	Large perforation on either side; active purulent otitis media	No	?	Parents, brother and sister partially deaf	Semi-mute; should be treated for otorrhœa
47	71	20 m	Scarlatina; 7½ years	None	None	None	Right drum-head sunken and cicatrical; left, entire loss of drum-head and ossicles	No	?	None	—
48	87	17 m Jew	Scarlatina; infancy	None	None	None	Chronic otorrhœa, with right and left perforations	No	?	None	Hutchinson's teeth; should be treated for otorrhœa
49	96	11 m	Scarlatina; 3 years	None	None	None	Right multiple cicatrices and chalky incrustations of left drum-head	No	?	None	—
50	117	13 m	Scarlatina; not given	None	None	None	Cicatrices	No	?	None	Teeth slightly irregular
51	123	15 m	Scarlatina; 3½ years	Hears loudest noise with right ear; left ear hears nothing	?	None	Right ear, large perforation; left ear, old cicatrix	No	?	None	—
52	162	13 m	Scarlatina; 4½ years	None	None	None	Scales on membrana tympani	No	?	None	Polypus was removed from external ear duct
53	65	12 m	Scarlatina; not given	Left ear hears loudest voice; right ear nil	In right and left ear	In right ear	Right cicatrix, from perforation; left is retracted	No	?	None	—

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared.	Amount of Hearing.	Air Conduction.	Bone Conduction.	Condition of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Prev'ble	Family History and Consanguinity.	Remarks.
54	54	15 f	Scarlatina; 3 years	None	None	None	No remarks in record	No	?	None	—
55	128	14 f	Scarlatina; 6 years	None	None	None	Right, old scar; left, large perforation	No	?	Third cousins	Hutchinson's teeth
56	156	11 f	Scarlatina; 4 years	None	None	None	Normal	No	?	None	—
57	131	16 f	Scarlatina; 3 years	None	None	None	Normal	No	?	Has a paternal aunt who is deaf and dumb	Teeth slightly notched; forehead slightly prominent
58	137	16 f	Scarlatina (not given)	Left ear very loud voice; right ear nil	In left ear	In left ear	Right, large perforation; left is dull	No	?	None	—
59	109	14 m	Cause unknown; 2 years	None	None	None	Slightly dull	No	No	None	—
60	146	18 m	Cause unknown; 1½ years	None	None	None	Normal	No	No	None	—
61	170	9 m	Cause unknown; 2 years	Hears loudest shouting	?	?	Retracted	No	No	None	—
62	32	15 m	Cause unknown; not given	Hears ordinary loud voice within a few feet, and repeats what he hears	?	?	Normal	No	No	Has a brother, 11 years old, in the same condition	Proper pains have not been taken with his education

63	89	11 m	Cause unknown; not given	None	None	None	Normal	No	No	None	—
64	115	13 m	Cause unknown; not given	Hears ordinary voice in two feet distance; repeats and answers correctly	?	?	Normal	No	Yes	None	—
65	172	9 f	Cause unknown; not given	Hears her name when called loudly	?	?	Normal	No	No	Grand-mother's cousin became dumb from fever when 7 years old	—
66	127	11 f	Cause unknown; 3½ years	None	None	None	Normal	No	No	None	Hutchinson's teeth and mark of face
67	49	11 f	Cause unknown; not given	None	None	None	Normal	No	No	None	Hutchinson's teeth
68	91	12 m	Cause unknown; probably congenital	None	None	None	Normal	No	No	None	—
69	121	7 m	Cause unknown; probably congenital	He seems to perceive very loud shouting close to the ear	?	?	Normal	No	No	Has a brother in the asylum, who is congenitally deaf and dumb	—
70	88	17 m	Cause unknown; probably congenital	None	None	None	Normal	No	No	None	—
71	108	17 m	Cause unknown; probably congenital	None	None	None	Normal	No	No	None	Irregular teeth

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared	Amount of Hearing.	Air Conduction.	Bone Conduction.	Conditions of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Prev't'ble	Family History and Consanguinity.	Remarks
72	76	16 m	Cause unknown; probably congenital	None	None	None	Normal	No	No	Maternal grandmother and uncle insane	—
73	136	18 f	Cause unknown; probably congenital	None	None	None	Normal	No	No	None	—
74	39	10 f	Cause unknown; probably congenital	Hears low voice in five feet distance; speech is slow, but distinct; articulation somewhat defective	Yes	Yes	Greatly retracted	No	No	None	Upper incisor teeth slightly notched
75	168	9 m	Cause unknown; probably congenital	None	None	None	Normal	No	No	None	—
76	70	10 m	Spinal meningitis; 1 year	None	None	None	Normal	No	No	None	Hutchinson's teeth
77	75	12 m	Spinal meningitis; 6 months	None	None	None	Retracted	No	No	None	—
78	77	12 m	Spinal meningitis; 1½ years	None	None	None	Normal	No	No	None	—
79	95	9 m	Spinal meningitis; 2 years	None	None	None	Right, dull; left, normal	No	No	None	Strumous individual
80	99	14 m	Spinal meningitis; 4 years	None	None	None	Normal	No	No	None	—

81	102	16 m	Spinal meningitis; 2 years	None	None	None	Normal	No	No	None	—
82	103	13 m	Spinal meningitis; 3 years	None	None	None	Normal	No	No	None	—
83	132	12 f	Spinal meningitis; 5 months	None	None	None	Normal	No	No	None	—
84	160	18 f	Spinal meningitis; 7 years	None	None	None	Normal	No	No	None	—
85	38	14 f	Spinal meningitis; 3 years	None	None	None	Normal	No	No	None	—
86	149	14 m	Cerebro-spinal meningitis; 2½ yrs	None	None	None	Normal	No	No	None	—
87	145	12 f	Cerebro-spinal meningitis; 6 mos	None	None	None	Normal	No	No	None	—
88	43	12 f	Cerebro-spinal meningitis; 1 yr	None	None	None	Normal	No	No	None	—
89	41	16 f	Cerebro-spinal meningitis; 5 yrs	None	None	None	Normal	No	No	None	—
90	60	16 m	Brain fever; 1 year	With Left ear hears sounds of loudest voice; Right ear entirely deaf	In left ear	None	Greatly retracted; no light spot	No	No	None	—
91	92	9 m	Brain fever; 2½ yrs	None	None	None	Normal	No	No	None	—
92	93	8 m	Brain fever; 7 yrs	Is deaf, but not mute	None	None	Normal	No	No	None	Notched teeth, fine face, healthy boy
93	100	14 m	Brain fever; 2 yrs	None	None	None	Retracted	No	No	None	—
94	140	19 m	Brain fever; 4½ yrs	None	None	None	Normal	No	No	None	—
95	44	16 f	Brain fever; 1½ yrs	None	None	None	Normal	No	No	None	—
96	45	13 f	Brain fever; 3 yrs	None	None	None	Normal	No	No	None	—
97	135	14 f	Brain fever; 3 yrs	None	None	None	Normal	No	No	None	—

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared	Amount of Hearing.	Air Conduction.	Bone Conduction.	Conditions of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Prev't'ble	Family History and Consanguinity.	Remarks
72	76	16 m	Cause unknown; probably congenital	None	None	None	Normal	No	No	Maternal grandmother and uncle insane	—
73	136	18 f	Cause unknown; probably congenital	None	None	None	Normal	No	No	None	—
74	39	10 f	Cause unknown; probably congenital	Hears low voice in five feet distance; speech is slow, but distinct; articulation somewhat defective	Yes	Yes	Greatly retracted	No	No	None	Upper incisor teeth slightly notched
75	168	9 m	Cause unknown; probably congenital	None	None	None	Normal	No	No	None	—
76	70	10 m	Spinal meningitis; 1 year	None	None	None	Normal	No	No	None	Hutchinson's teeth
77	75	12 m	Spinal meningitis; 6 months	None	None	None	Retracted	No	No	None	—
78	77	12 m	Spinal meningitis; 1½ years	None	None	None	Normal	No	No	None	—
79	95	9 m	Spinal meningitis; 2 years	None	None	None	Right, dull; left, normal	No	No	None	Strumous individual
80	99	14 m	Spinal meningitis; 4 years	None	None	None	Normal	No	No	None	—

108	34	7 m	Fall on head; 1½ yrs	None	None	None	Normal	No	No	None	—
109	35	9 m	Fall on head; infancy	None	None	None	Slightly dull	No	No	None	—
110	38	10 f	Fall on head; year	None	None	None	Retracted	No	No	Second cousins	Prominent frontal eminences
111	68	10 m	Fever; 2 years	None	None	None	Right and left dull and retracted	No	No	None	—
112	42	17 f	Fever; 5 years	None	None	None	Normal	No	No	None	—
113	1	16 m	Whooping-cough	None	None	None	Right normal; left is perforated	No	No	None	Whooping-cough was followed by bleeding from the nose, mouth and ears; possibly there was hæmorrhage into the labyrinth
114	30	17 f	Injuries to head	None	None	None	Normal	No	No	None	—
115	59	7 m	Mumps; 10 years	No hearing, but speaks	?	?	Retracted and dull	No	No	None	—
116	61	15 m	Heredity; 6 years	Right ear hears sounds of loudest voice; left ear is entirely deaf	?	?	Normal	No	No	Grandfather deaf and dumb at 6 years from scarlatina, he had two daughters who became deaf and dumb at 6 years of age; one of them was this boy's mother; he gradually became deaf and dumb in the same manner	—
117	82	15 m	Hydrocephalus; 1½ years	None	None	None	Normal	No	No	None	—
118	212	15 m	Malaria; 3 years	None	None	None	Normal	No	No	None	—

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared.	Amount of Hearing.	Air Conduction.	Bone Conduction.	Condition of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Preventable?	Family History and Consanguinity.	Remarks.
98	161	11 f	Brain fever; infancy	None	None	None	Normal	No	No	None	—
99	97	10 f	Brain fever; infancy	None	None	None	Normal	No	No	Has a brother, 14 years old, who is deaf but not mute	—
100	94	7 m Jew	Typhoid fever; 4 yrs	None	None	None	Normal	No	No	None	—
101	48	18 f	Typhoid fever; infancy	None	None	None	Normal	No	No	Has older sister deaf mute	Teeth are irregular
102	47	15 f	Typhoid fever; 2 yrs	None	None	None	Normal	No	No	Has younger sister who is a deaf mute; was affected at six months old	Teeth irregular
103	2	8 f	Typhoid fever; not given	None	None	None	Normal	No	No	None	—
104	58	25 m	Measles; 1 year	Right ear partially deaf; Left ear hears sound of loudest voice	?	?	Left drum, small perforation and purulent discharge; right drum-head old scar	No	?	None	The examination of bone conduction in this very intelligent patient, reveals the fact that the sensation of the tuning-fork is felt a purely mechanical vibration, alike on hand and head.
105	73	9 m	Measles; 2 years	None	None	None	Right drum normal; left slightly retracted	No	?	None	—
106	141	20 f	Measles; 1½ years	None	None	None	Normal	No	?	None	—
107	144	21 f	Measles; 6 years	None	None	None	Right and left total perforation	No	?	None	—

108	34	7 m	Fall on head; 1½ yrs	None	None	None	Normal	No	No	None	—
109	35	9 m	Fall on head; infancy	None	None	None	Slightly dull	No	No	None	—
110	38	10 f	Fall on head; year	None	None	None	Retracted	No	No	Second cousins	Prominent frontal eminences
111	68	10 m	Fever; 2 years	None	None	None	Right and left dull and retracted	No	No	None	—
112	42	17 f	Fever; 5 years	None	None	None	Normal	No	No	None	—
113	1	16 m	Whooping-cough	None	None	None	Right normal; left is perforated	No	No	None	Whooping-cough was followed by bleeding from the nose, mouth and ears; possibly there was hæmorrhage into the labyrinth
114	30	17 f	Injuries to head	None	None	None	Normal	No	No	None	—
115	59	7 m	Mumps; 10 years	No hearing, but speaks	?	?	Retracted and dull	No	No	None	—
116	61	15 m	Heredity; 6 years	Right ear hears sounds of loudest voice; left ear is entirely deaf	?	?	Normal	No	No	Grandfather deaf and dumb at 6 years from scarlatina, he had two daughters who became deaf and dumb at 6 years of age; one of them was this boy's mother; he gradually became deaf and dumb in the same manner	—
117	82	15 m	Hydrocephalus; 1½ years	None	None	None	Normal	No	No	None	—
118	212	15 m	Malaria; 3 years	None	None	None	Normal	No	No	None	—

No.	Page in Record.	Age, Sex, and Race.	Cause stated by parents or guardians, and age at which they say deafness appeared.	Amount of Hearing.	Air Conduction.	Bone Conduction.	Condition of Membrana Tympani.	Is the Case Curable?	Was the Present Condition Prev'ble	Family History and Consanguinity.	Remarks.
119	128	17 f	Diphtheria; 2 years	She seems to have vague perception of loud sounds	?	None	Normal	No	No	Has a deaf sister in the institution	Teeth irregular but not characteristic
120	159	13 f	Intermittent fever in infancy	Quantitative perception of sound, but no speech	?	O	Normal	No	No	Mother died from consumption; one sister and two brothers are well	——
121	169	17 m	Fits; infancy	None	None	None	Retracted and opaque	No	No	Uncle deaf and dumb from scarlatina at six years old; one brother and sister, well	——
122	83	10 m	Sickness; infancy	None	None	None	Normal	No	No	None	——

36 CASES OF DOUBLE BLINDNESS

EXAMINED AT THE

INSTITUTION FOR THE DEAF AND DUMB, AND THE BLIND

AT

BERKELEY, CAL.

1884

BY A. BARKAN, M. D.

No.	Page in Record.	Age and Sex.	Cause stated by parents or guardians, and age at which they say Blindness appeared.	Parts of the Eye Affected.	Vision	Was Blindness Prev'ble	Is the Case Curable?	Family History and Consanguinity	Remarks.
1	20	15 m	Congenital	Right eye: Posterior staphyloma and nystagmus. Left eye: Posterior staphyloma and nystagmus.	Right eye: Myopia—$\frac{1}{18}$ Left eye: Myopia —$\frac{1}{18}$	No	No	None	Does this patient rightly belong to the Institution?
2	171	7 m	Congenital	Right eye: Cataract. Left eye: Cataract.	Sees motions of hand	No	Greatly improvable	None	This case was admitted after the abolishment of expert commission who refused to admit him.
3	152	19 m	Congenital	Right eye: Cataract. Left eye: Cataract.	Counts fingers at two feet	No	Improvable	Other members of the same family have good eyesight	This case was recommended to Trustees for an operation.
4	153	20 m	Congenital	Right eye: Irido-choroiditis. Left eye: Irido-choroiditis and cataract.	None	No	No	None	——
5	24	10 m	Congenital	Right eye: An ophthalmus. Left eye: Pigmentary Retinitis and cornea totally opaque.	Right eye: none Left eye: quantitative perception of light	No	No	None	——
6	12	9 f	Congenital	Right eye: White atrophy of optic nerve. Left eye: White atrophy of optic nerve.	None	No	No	Has a sister who is blind and paralyzed	Hereditary Syphilis
7	8	7 f	Congenital	Right eye: Old scars in cornea.	Quantitative perception of light	No	No	None	Defective record
8	6	20 f	Congenital	Right eye: Atrophy after an operation. Left eye: Enlarged.	None	No	No	Brother deaf and dumb and sister blind	——

9	21	18 m	Ophthalmia Neonatorum	Right eye: Total atrophy. Left eye: An ophthalmus after enucleation.	None	Yes	No	None	
10	163	9 m	Ophthalmia Neonatorum	Right eye: Staphyloma of cornea and sclerotic. Left eye: Adherent anterior leucoma.	Right eye: none Left eye: sees fingers at six inches	Yes	No	None	
11	151	11 m	Ophthalmia Neonatorum	Right eye: Corneal leucoma and capsular cataract. Left eye: Atrophy of ball.	Right eye: reads ordinary print Left eye: no vision	Yes	Right eye: improvable Left eye: No	None	Notched teeth
12	25	3 m	Ophthalmia Neonatorum	Right eye: An ophthalmus from removal of ball. Left eye: Total corneal leucoma.	None	Yes	No	Has a brother who is deaf and dumb, and a sister who is blind	——
13	5	10 f	Ophthalmia Neonatorum	Right eye: Staphyloma. Left eye: Staphyloma, both bulbs removed.	None	Yes	No	None	——
14	10	10 f	Ophthalmia Neonatorum	Right eye: Staphyloma and corneal opacity. Left eye: Atrophy and corneal opacity.	None	Yes	No	None	——
15	11	15 f	Ophthalmia Neonatorum	Right eye: Complete corneal leucoma. Left eye: Complete corneal leucoma.	None	Yes	No	None	——

No.	Page in Record.	Age and Sex.	Cause stated by parents or guardians, and age at which they say Blindness appeared.	Parts of the Eye Affected.	Vision.	Was Blindness Preventable	Is the Case Curable?	Family History and Consanguinity.	Remarks.
16	158	9 f	Ophthalmia Neonatorum	Right eye: Staphyloma. Left eye: Atrophy.	None	Yes	No	None	——
17	159	9 f	Ophthalmia Neonatorum	Right eye: Corneal and sclerotical Staphyloma. Left eye: Entire corneal Leucoma.	Quantitative perception of light	Yes	No	None	After unsuccessful, and probably injudicious treatment on part of the Physician the child was taken to Specialist, when two weeks old.
18	18	14 m	Cause unknown: at 4 years	Right eye: White atrophy and Nystagmus. Left eye: White atrophy and nystagmus.	None	No	No	None	Protruding forehead and prominent frontal sinuses
19	27	10 m	Cause unknown: at 6 years	Right eye: Choroiditis and secondary atrophy of optic nerve. Left eye: Choroiditis and secondary atrophy of optic nerve.	None	No	No	Father and sister are insane	——
20	13	16 f	Cause unknown: at 2 years	Right eye: Chronic choroiditis and chalky cataract. Left eye: Atrophy and chalky cataract.	None	No	No	None	Incomplete record
21	167	13 f	Cause unknown: "not given"	Right eye: White atrophy of optic nerve. Left eye: White atrophy of optic nerve.	None	No	No	None	——

22	17	18 m	Brain Fever: at 6 years	Right eye: Complete atrophy of optic nerve. Left eye: Complete atrophy of optic nerve.	None	No	No	None	——
23	16	14 m	Brain Fever: at 5 years	Right eye: White atrophy of optic nerve. Left eye: White atrophy of optic nerve.	None	No	No	None	——
24	1	20 f	Brain Fever: at 13 years	Right eye: Complete atrophy of optic nerve. Left eye: Complete atrophy of optic nerve.	None	No	No	None	——
25	22	18 f	Brain Fever: at 6 years	Right eye: optic Neuritis followed by Atrophy. Left eye: optic Neuritis followed by Atrophy.	None	No	No	None	——
26	122	13 m	Granular Conjunctivitis: at 6 years	Right eye: Corneal opacity and cicatricial contraction of lid. Left eye: Corneal opacity and cicatricial contraction of lid.	Right eye=$\frac{15}{200}$ Left eye=$\frac{4}{200}$ Reads largest print with difficulty	Yes	No	Third cousins	Hutchinson's teeth
27	15	15 f	Granular Conjunctivitis: at 11 years	Right eye: Atrophy of bulb. Left eye: Leucoma, anterior synechia and capsular cataract.	Right eye: Reads middle small print at four inches Left eye: Reads Jaeger, No. 5	Yes	Greatly improvable by operation	None	——
28	23	22 f	Granular Conjunctivitis: at 10 years	Right eye: Total leucoma of cornea and granulated lid. Left eye: Total leucoma and granulated lid.	None	Yes	No	None	——

No.	Page in Record.	Age and Sex.	Cause stated by parents or guardians, and age at which they say Blindness appeared.	Parts of Eye Affected.	Vision.	Was Blindness Prev'ble	Is the Case Curable?	Family History and Consanguinity.	Remarks.
29	28	15 m	Megalophthalmus	Right eye: Staphylomatous and opaque. Left eye: Staphylomatous and opaque.	Right eye: None Left eye: quantitative perception of light	No	No	None	Hutchinson's teeth and syphilitic forehead
30	164	13 m	Spinal Meningitis: at 6 years	Right eye: Atrophy of optic nerve. Left eye: Atrophy of optic nerve.	None	No	No	None	——
31	7	18 f	Malarial Fever: at 7 years	Right eye: Abscess of bulb. Left eye: Atrophy of bulb.	None	No	No	None	——
32	—	—	Small Pox: at 2 years	Right eye: Central leucoma and diffuse opacity. Left eye: Central leucoma and diffuse opacity.	Right eye: Counts fingers at four ft. Left eye: at five ft.	?	Improvable	None	Iridectomy recommended
33	9	13 f	Rheumatism: "Not given"	Right eye: Purulent choroiditis atrophy of bulb and secondary chalky cataract. Left eye: Purulent choroiditis atrophy of bulb and secondary chalky cataract.	None	No	No	None	——
34	14	16 f	Syphilis: "Infancy"	Right eye: Cataract, irregular pupil and nystagmus Left eye: Cataract, irregular pupil and nystagmus	Right eye: Quantitative perception of light Left eye: Reads small print at three inches	No	Right eye: Improvable	None	Hutchinson's teeth and syphilitic forehead
35	19	15 m	Injury to eye: at 8 years	Right eye: Atrophy of ball. Left eye: An ophthalmus from removal.	None	No	No	None	——
36	26	10 m	Poison Oak: at 8 years	Right eye: Atrophy of cornea after perforation, and slight atrophy of bulb. Left eye: Atrophy of cornea after perforation, and slight atrophy of bulb.	None	No	No	None	——

REPORT ON THE ETIOLOGY OF LEPROSY.

By W. F. McNUTT, M. D., M. R. C. P., etc., etc., Chairman.

Mr. President and Members of the California State Medical Society:

Your Committee on the Etiology of Leprosy beg leave to report as follows :

In dealing with a question of such momentous import to the interests, not only of this State, but of the whole nation, it was deemed absolutely necessary to collect the views and opinions of competent observers in different parts of the world in order to form a sound basis for intelligent investigation. This of course necessitated the expenditure of considerable time and labor—commodities which the busy practitioner is obliged to dispense with economy. But in view of the great responsibility devolved upon them, your committee felt bound not to allow personal convenience to interfere with the conscientious performance of their duty, and letters embodying the following questions were accordingly addressed to a number of physicians who, residing in countries where leprosy prevails, and being either in charge of leper hospitals or otherwise engaged in the study of this disease, have earned the right to speak authoritatively on the subject:

1st. Which form of leprosy is most commonly met with in your locality ?

2d. Are the several forms of leprosy, in your opinion,

distinct diseases, or only different varieties of the same disease, and convertible one into the other ?

3d. Is leprosy an hereditary disease ?

4th. Is it contagious ?

5th. Do you regard diet, climate or soil as etiological factors ?

6th. Do you consider leprosy a modified form of syphilis, and, if so, under what peculiar conditions does syphilis develop into leprosy ?

The correspondence thus solicited has been promptly responded to, and in addition to the numerous letters received, we are indebted to Dr. D. C. Danielssen, of Bergen, Norway, for the reports of *Lungegaard's Hospital* from 1871 to 1885 inclusive, and to Dr. John S. McGrew of Honolulu, for a number of very valuable reports published by the Hawaiian Government, comprising an octavo volume of 247 pages on "Leprosy in Foreign Countries," another of 192 pages on "Leprosy in Hawaii," Dr. Edward Arning's report to the Board of Health, and three other pamphlets containing the reports of the President of the Board of Health to the Legislative Assembly of 1886. In these are embodied the reports of Drs. Fitch, Arning, Monritz, Webb, Gotto, the Rev. Father Damien, and others. Dr. H. S. Orme, a member of this committee, has also furnished, in a reprint from the *Southern California Practitioner*, an article on "Leprosy in the Hawaiian Islands," by Dr. M. Hagan, late physician to the Hawaiian Insane Asylum, and at present the efficient Health Officer of Los Angeles.

From the abundant material thus at hand, the committee has endeavored to sift out whatever seemed to throw any light on the subject under consideration, and to apply the same in answering the questions given above, trying, when possible, to reconcile conflicting views, and finally to draw a few practical lessons as to prophylaxis.

The first two questions may be disposed of in a very few words. Most writers recognize only two varieties of

leprosy, the *tubercular* and the *anæsthetic*. To these some add a third, the *macular*, which Dr. McGrew regards as the last stage of the other two, anæsthesia being an almost constant symptom of all forms of leprosy, though hyperæsthesia is said to occur in a few cases. Some writers prefer to designate the non-tubercular variety as *smooth* leprosy. The term "anæsthetic," though, perhaps, wanting in scientific accuracy has, however, become naturalized, as it were, by long usage, and we shall, therefore, continue to apply it in this report to the non-tubercular variety. As regards the second question there is no difference of opinion. All agree unanimously that the several varieties are only different forms of the same disease, that they are convertible one into the other, and that they frequently co-exist in the same individual, the disease being then known as the mixed form of leprosy. The question, as to the relative frequency of these forms, brings a somewhat different answer from different countries. Thus in Norway the tubercular form appears to be the more common, constituting, according to Dr. Edward Kaurin, the Director of *Reknæs Leper Hospital*, at Molde, about 70 per cent. of all cases met with. In Louisiana, according to Dr. Lucien T. Salomon, the mixed variety is commonly found, tubercles being the most prominent feature, though he believes that the disease began in the majority of instances with anæsthetic spots. Dr. McGrew thinks that the anæsthetic form is most prevalent in Hawaii, though being about equally divided, he is not able to say for certain. Dr. Arning is of the opinion that the tubercular form is becoming of rarer occurrence than formerly, and this he regards as a sign that the disease has spent its greatest virulence and is becoming gradually more benign, the anæsthetic variety being regarded as a milder type of the disease. Wherever the disease exists both varieties are found, sometimes one, sometimes the other predominating.

Questions three and four, relating to the communica-

bility of leprosy, will be best considered together. By many the disease is considered hereditary and not contagious, while others regard it as contagious and not hereditary, and not a few hold that it is both hereditary and contagious. Let us first examine the testimony from India. The Secretary to the Government of India, in a communication to the Minister of Foreign Affairs, says: "On the whole it is believed that the medical evidence tends to show that the disease is not contagious. In support of this view it may be mentioned that not a single servant of the asylum at Almora in the Kumaon District of the North West Provinces appears to have contracted the disease during the thirty-one years for which there is information. Such evidence as is available tends to show that the disease is to a large extent hereditary, but that the influence of heredity is much more strongly marked in the female line of descent.

Dr. W. J. Moore, Surgeon-General to the Government of Bombay, says: "Evidence seems to show that it (leprosy), like some other maladies, may be sometimes hereditary" and that "there are instances recorded which seem to demonstrate its contagiousness." Surgeon-General R. Cockburn of Hoogly regards it as both hereditary and contagious. Says he:

"The disease is hereditary. I have invariably seen the children of a leper become lepers, and one thing is peculiar, that the children of the leper generally get the leprosy at the age of the parent when he first got the disease. I have seen one member of a family to be affected, while other members remained free from it, but the man who had the disease generally ascribed it to his association with lepers." * * * *

"I have every reason to believe the disease to be contagious. I have seen a wife with her two children contract the disease by remaining with her husband after he had the disease on him, while three other children who left him for the disease, remained free. The disease

of this man had not advanced to the stage of ulceration. I know a boy who became a leper after having bought a pigeon from a leper and constantly handled it, though his parents were free from the disease, and he had no communication with any other leper. I have seen two healthy, strong, good constitutioned men, having no hereditary tendency to the disease, become lepers after a year's attendance in the leper asylum."

The majority of observers in India regard the disease as hereditary. As to its contagiousness opinions seem about equally divided.

If we now turn to the Hawaiian Islands we shall find that the disease is universally regarded as both hereditary and contagious. "Repeated investigations," says Dr. Hillebrand in a report dated April, 1863, "leave but little doubt in my mind about the contagious character of the disease, as I have followed its gradual spreading from a single person to many people in the same village." Says Dr. Baldwin of Lahaina, two years later: "The disease has been considered in all countries contagious. It has been so in Lahaina, though it does not appear in a new subject till a long time after exposure to its infection." Dr. Hoffman gave it as his opinion in 1866, that the disease might be communicated by "close and continued contact with a leprous subject, and under other not yet fully ascertained predisposing causes." To the question: "Is leprosy contagious?" we find the following answer in the report of the Board of Health to the Legislative Assembly of 1868:

"Although there is high authority in other countries to the contrary, the Board believes that it may pronounce a positive opinion in the affirmative, and it is believed that opinion will be upheld by every physician on the Islands, who has had experience with the disease, but it can hardly be determined exactly under what conditions contagion takes place; it does not appear to be very active, and probably under ordinary circumstances it does not

occur in the early stages of the disease, but in the ulcerative form the danger is great." In 1870 the Board reasserts this same opinion and adds that the disease is also transmitted by inheritance. In 1872 the Board had not changed its opinion, as will be seen from the following extract: "The question is still asked at times: 'Is the disease contagious?' We most emphatically say, yes! Daily experience confirms this." Dr. Trousseau gave it as his opinion in 1873, that leprosy was not contagious in the ordinary sense of the word, that is, by contact mere and simple. "But," says he, "provided there is a predisposition in a person, that person may contract the disease by various means—cohabitation, smoking out of the same pipe, eating or drinking with a leper, and so forth." "The more I study leprosy," says Dr. Emerson, Medical Superintendent of the leper settlement at Kalawao, Molokai, and Sanitary Inspector of the Board of Health, in a report dated March, 1880, "the more I study leprosy the more I am led to believe that it is a contagious disease, and that every leper is a possible source of infection to whomsoever comes in contact with him."

Dr. Chas. Neilson, resident physician, leper hospital, Molokai, in his report to the Board of Health, 1880, considered the disease both contagious and hereditary. Dr. G. L. Fitch seems to stand entirely alone in combating the theory of the contagiousness of leprosy.

In Hawaii, as elsewhere, cases are not wanting of persons living for years in close and intimate relations with lepers without contracting the disease, as healthy husbands with leper wives and *vice versa*; but this far from proves the non-contagiousness of the disease. It only proves, as with other contagious diseases, that certain individuals possess special immunity. The period of incubation being also a long one, extending probably, in some instances at least, over a period of many years, many of those who have apparently resisted the disease, may be found later to, after all be the victims of contagion. For twelve years

the Rev. Father Damien lived among the lepers at Molokai, serving the afflicted with heroic self-devotion, dressing their sores and assisting at the burials of the putrid dead, without showing any sign of the disease, and he has been often pointed to as a living illustration of the non-contagiousness of leprosy. About two years ago, however, he began to show outward manifestations of tubercular leprosy, and is now said to be a confirmed leper. Dr. Arthur Mouritz, the present Resident Physician and Medical Superintendent at the Leper Settlement, Molokai, in his most excellent report to the Board of Health, 1886, produces strong arguments in support of the view that leprosy is both contagious and hereditary. He believes that the "contagium" of leprosy enters the system either by inoculation, as at broken surfaces of the skin or mucous membrane, and possibly by punctures of insects, or in the presence of parasites, scabies, etc., or by inhalation; and this latter he regards as the most frequent mode of entrance. He believes that about 18 per cent. of the Hawaiian race resist the contagion of leprosy. He thinks that in about 70 per cent. of the cases met with in the Islands, the disease has been contracted by contagion, the remainder being due to heredity. In about two per cent. of the cases he holds vaccination responsible. Dr. Arning in his report to the Board of Health, 1884, declares himself a strong advocate of segregation. Says he:

"From what we already know of the nature of the disease, we are entitled to enforce segregation, even without the question of actual contagion being definitely settled. We know that leprosy is dependent on the invasion of the human body by a microscopic germ which has the power to increase indefinitely in the tissues.

"Therefore, we must look upon every single leper as a hot-bed of disease, quite independently of the exact condition under which he can transmit it to others. He, at any rate, breeds and multiplies a poisonous germ, and is, on this account, dangerous. A similarly infested locality

we would hasten to quit, as we are not able to remove it from us. But in the case of leprosy, which is bound to individuals and not to localities, it is more expeditious to remove the infected individuals from the unaffected members of the community."

With regard to the special immunity enjoyed by some, he observes: "As every seed requires its peculiar conditions of soil, atmosphere, etc., to allow it to strike, and when struck to grow up to be itself a seed-bearing plant, so does the leprous germ require a certain disposition of the human soil to strike and thrive. What this peculiar disposition may be, we are at present unable to define. It is evidently a disposition which may exist concurrently with apparent good health, as many examples of strong, robust men developing leprosy show us. This disposition may possibly be transmitted by heredity. I desire not to be misunderstood on this particular point. I do not believe that leprosy itself is in any case congenital, but I do believe that a certain weakness to resist its attacks may be transmitted."

The following experiments made in order to determine the power of resistance of the leprous germs to putrefaction have a practical bearing on the question of the communicability of the disease. We quote from Dr. Arning's report to the Board of Health:

"Leprous tissue and matter was set aside under conditions of temperature and moisture, most conducive to slow and thorough putrefaction, whilst the growth of the larger fungi was at the same time carefully excluded. From time to time a microscopical examination was made, and the characteristic bacillus lepræ was not only found to hold its own against the germs of dissolution and putrefaction of albuminous matter, but met with so abundantly and laden with spores that the idea suggested itself, there might be actual increase. An examination made a few days ago of the remains of this leprous tissue set aside fully eight months ago, shows it to consist

nearly entirely of swarms of the bacillus lepræ, closely packed. Every vestige of the cellular and fibrous structure of the tissue has disappeared, even the bacteria of putrefaction have crumbled up into a mass of detritus, but the bacillus lepræ is there with all its peculiar microchemical reactions.

"The discovery prompted me to examine dead bodies of lepers under the ordinary and natural influence of decomposition. Not being able to acquire the desired corpse here, I went to Molokai and succeeded in procuring parts of the body of a tubercular case which had been buried for nearly three months, and was in the most active state of putrefaction. After what I had learned from my experiments, I was not surprised to find the leprous germ present in large numbers.

"I candidly admit that I am not able to give a decisive answer to the question whether these germs are alive and capable of reproducing the disease. This final question will not be solved till we have been successful in artificially cultivating the germ, a result which none of us who are engaged in this question, have as yet achieved. However I feel personally confident from the microscopical evidence alone, that they have not lost their power of germinating under the above named conditions. At any rate it seems to me desirable to effectually bar even the possibility of a spread of the disease through the slow decomposition of the dead bodies of lepers in the graveyards surrounding the town. Cremation would certainly be the surest safeguard, but as that can hardly be achieved, I suggest the compulsory filling up of the coffins containing the corpses of lepers with quicklime. To secure this end, I deem it necessary to stop the practice of letting friends and relatives take away the dying lepers to their homes, as has recently been done in several cases."

Dr. Hagan declares emphatically that the disease is both contagious and hereditary. With regard to the period of incubation he says:

"The exact period of the incubation stage has never been determined. No primary lesion has ever been observed, and the disease, when first recognized, is thoroughly constitutional. But the period of exposure in individual cases has been ascertained with some degree of certainty, and would indicate a range of from five to ten years from the time of exposure until the development of the disease. Hereditary leprosy develops in children between the ages of five and seven years. This is thought to be a guide as to the period of incubation in acquired cases."

Turning our attention next to Canada, we will first take down the testimony of Dr. J. C. Tache, Titulary Professor of the Laval University, Knight of the Legion of Honor and Deputy Minister of Agriculture. He says:

"I am aware of many instances of the disease appearing to be contagious, in the ordinary sense of that term; I mean instances in which heredity cannot be invoked and in which contagion is the only cause capable to reasonably account for the propagation of the malady. The typical character of leprosy, the category to which it consequently belongs in the nosological table, its general history and what I have ascertained in New Brunswick, leave no doubt in my mind about the contagiousness of the disease. I firmly believe that it is communicable from the diseased to the healthy. I do not think, from what I have observed, that proximity, no matter how close, nor mere touch, can convey the contagion. In my opinion, there must be an adequate contact of some kind, mediate or immediate, of course, with an individual susceptible of contracting the malady, and, at the time, so circumstanced as to be in a situation to receive it. I hold contagion as the cause of the *propagation* of the disease; and in so saying I do not lose sight of the fact of the occasional spontaneous *production* of leprosy; *importation*, of course, means contagious spreading into one country, when it extends beyond immigrants sick, and their descendants.

"There is a case, the facts of which are established beyond possibility of cavil, in which the disease appears to me, as well as it did to those who witnessed it, to have been produced by the absorption of liquid matter discharged from the body of a woman who had died in a cachectic state from leprosy. At the funeral of that woman the body was carried (according to a then long-standing custom, which has been since abandoned on account of what, I am now reciting) on the shoulders of four strong young men. The day was hot, and, on a sudden, liquid matter began to ooze out through a joint of the coffin, wetting the shoulder of one of the carriers. The wet, combined with the heat and the pressure of the sharp edge of the coffin, produced an abrasion on the skin of the young man. The contact of the liquid matter with the abraded surface lasted a part of the time of the procession and the whole length of the service, as it was only on his return home that the young man washed his sore shoulder and changed his clothing. Some months after, that man, whose health had always been robust, began to feel unwell; in a short time the symptoms of leprosy made their appearance, and he died of the disease eleven years after the occurrence. There had never been any case of leprosy in his family, whose ancestral genealogy is traced for several generations back; in fact, the disease was not yet known as leprosy, being of recent appearance in the locality and among these people; he was the fourth case in that place, the three others being the woman spoken of, the husband and the sister of the woman, in the ancestry of whom there had never been, neither, any trace of the disease; the fifth case in that locality was the sister of that young man. The woman's husband and sister had the disease a few years before her death, and the young man's sister a few years after the commencement of the disease in her brother.

"*a.* The woman spoken of had ulcerations, with abundant discharge, at the time of her death. This would be a

case of the well-known survivancy or posthumous persistency of the malignity of virulent matter."

Dr. A. C. Smith, visiting physician to the Tracadie Leprosy Hospital, says: "I am convinced that leprosy is contagious, though not to the extent of other contagious diseases."

Dr. J. E. Graham regards it as communicable by sexual intercourse.

Dr. Salomon, of New Orleans, who has studied leprosy in Louisiana, says:

"The sum of evidence leads to the belief that the disease is hereditary, most of the cases giving such history. However, long-continued contact with a leper may give rise to the disease, as was shown in one case which came to my knowledge, wherein a young woman who had for a number of years nursed and slept in the same bed with an old leper, contracted the disease."

Dr. Hœgh, of LaCrosse, Wis., who has observed the disease among the Norwegians of Minnesota and Wisconsin, is of the opinion that it is contagious.

Dr. Danielssen, of Norway, says that leprosy is hereditary, and while he has been unable to prove its contagiousness, he does not deny that it may, under especially favorable circumstances, be transmitted through contagion.

Dr. Hansen, who has for many years been engaged in researches similar to those of Dr. Arning, is a strong contagionist. So is Dr. Kaurin, of Molde, whose observations cover about one thousand cases. He sends us the following translation from the report of a case by himself, which was published in Tidsskrift for Praktisk Medicin, No. 23, December 1ste., 1886:

"Jon Joergen Johansen, from Hiteren, nine years of age, was brought to the children's compartment of Reknæs Hospital, on October 13, 1886, suffering from lepra tuberosa in the stage of eruption, small, straggling, elevated spots and tubers, particularly on the extremities.

A little tuber extirpated from the chin showed lots of lepra bacilli. He has four healthy brothers and sisters, eleven, seven, five and two years of age. His parents and grandparents on both sides are assuredly known to be free from leprosy. In his home lived a leprous 'Kaarmand,'* who was a brother of his maternal grandfather. This man was in reality from Horg, but came to the district about twenty years ago; his brother is also said to have been leprous. The Kaarmand is stated to have been leprous for seven years, and has for five years resided in Jon's home. He suffered from the tuberous form in the stage of ulceration; especially on both of the lower extremities were very big, strongly secreting and badly smelling sores, neglected in the highest degree. He was brought to the hospital at Reitgierdet a year ago (in September, 1885), where he died six weeks after his admission.

"Jon's home is extremely poor and in a state of the utmost misery; a little hut with several broken windows, stopped with old clothes and linen rags. In the 'parlor' the furniture consists of a bench, a table, a chair and two beds, in which the underlayer is formed by damp, half-rotten hay, and the cover by empty, dirty pillow-cases and a few old dirty petticoats and other articles of dress, which were left as not wanted for the day. The necessary light is furnished by a little rag, which dipped in herring-fat, gives light to the little housework which is practiced in this home.

"On the loft over the parlor stood the bed of the 'Kaarmand,' and here he stayed of late both day and night. Here also lay in another bed Jon and two of his brothers. Jon was called after the Kaarmand, and was his pet, and frequently lay in bed along with him. The Kaarmand greatly valued Jon as a bedfellow, and enticed him with sugar and sweet cakes; he took no insult, and would not listen when he was told that Jon ought not to share

*A man who has ceded his farm and receives in return a yearly allowance.

his bed. *It is peremptorily affirmed that it was Jon only, and not the other sisters and brothers who lay in bed along with the Kaarmand.*

"About a year ago three small sores or pimples appeared on the top part of the outside of Jon's right thigh, no suspicious phenomena indeed. During his minding the cattle last summer, a tuberous eruption began on the extremities, which led to an examination by a physician. The boy's general state of health has all the time not in any manner been suffering.

"These particulars were first communicated to me by a schoolmaster, and spokesman in the commission for the poor of Hiteren, who followed the boy hither to Reknæs, and later on completed by Mr. Heitmann, the district physician of Hiteren, to whom I wrote concerning the real state of the case, and who with great good will immediately sent me the necessary and accurate information.

"When the above-mentioned schoolmaster had answered my different questions, he said at last, 'can any one longer doubt that leprosy is contagious?' I think many who read this account of Jon will say the same; at least to me it is a new and very essential link in the series of cases, where I must suppose contagion to be the cause of lepra. The etiology of lepra is in fact reckoned to be one of the most important questions of the present time; they work with industry and zeal in different places to solve this riddle. I have on another occasion said, that the longer I am occupied with leprosy the more clinic observations do I get which peremptorily seem to advocate the ability of the sickness to be transported from one individual to another. Here is one of those observations which I have thought interesting enough to communicate to a larger circle of readers.

"The case is certainly not quite 'clean,' as far as it is stated with certainty, that the sickness has never occurred in Jon's family; two brothers of his grandfather have in fact been leprous, and this may certainly by some be

taken to interest of the quality of being hereditable as a cause also in this case. It appears to me, however, that such an explanation here becomes rather fetched, when we have the indisputable fact to stick to, that the child of five brothers and sisters, who steadily associated with the leprous Kaarmand in the most intimate, and consequently, also most incautious manner, and in the house existing in the highest degree in a miserable and unclean state, and who also is the only one who shares bed with the ulcerating, strongly secreting, tuberous, leprosy suffering man, and becomes attacked by the sickness. We certainly know that in a marriage the husband is leprous, the wife, notwithstanding many years' cohabitation not, or vice-versa; but we also know that the receptability of contagion is not alike with all, as also, that the skin of a nine years old boy is entirely otherwise exposed to rents and excoriations, through which the infection may take place in preference to that of a grown-up person, to which also may be added, that a child in quite another manner, careless and unconcerned, associates with such a poor leper replete with open sores, as the Kaarmand in question has been."

Dr. Ecklund of Stockholm, Sweden, declares leprosy more contagious than syphilis. Dr. H. N. Allen of Soeul, Korea, believes leprosy to be contagious, and Dr. C. F. Dight of Beirut, Syria, says: "Leprosy is *unquestionably* hereditary. Most physicians in the East believe it is *not* contagious; but that it is, seems indicated from the fact that turkeys, pigeons, and mice, which have fed about the premises of lepers, have presented symptoms, which correspond very closely, if not exactly, with leprosy in man."

Thus we might go on multiplying testimony from eminent observers in all countries. But space forbids. The preponderance of the evidence at the present time is certainly strongly on the side of contagion as well as hereditary transmission.

As regards question 5, the sum of the evidence seems

to show that while neither diet, climate, nor soil, except the soil in which lepers are buried, can be regarded as etiological factors *per se*, yet unwholesome food, a damp soil, and certain climatic conditions may act as predisposing causes, and tend to develop the disease where the hereditary tendency exists. They will, no doubt, also aggravate the disease, when it has made its appearance.

Question 6. In examining the evidence we will first quote Dr. Fitch, who says:

"Leprosy is the fourth stage of syphilis, a stage that white men are exempt from in a vast majority of cases.

"First.—By reason of hereditary immunity.

"Second.—By reason that medical science has advanced to such a stage that while we cannot kill the disease syphilis, we can most heartily scotch it."

Many observers in India, Central America, Mexico and elsewhere seem to hold similar views, but not one, as far as we have been able to learn, has given a single fact in support of their theory. Surgeon-General Moore, of Bombay, regards leprosy as "a latent inherited constitutional syphilitic taint, developed into activity in certain constitutions by surrounding insanitary conditions;" but he fails to give his reasons for such an opinion. Let us examine some of the evidence on the other side. Dr. Emerson presents in our opinion by far the best argument on this subject. Says he:

"The assertion has been made that leprosy is but the fourth stage of syphilis. This cannot be substantiated by any medical authority whatever.

"Historical leprosy antedates syphilis by many hundred years, and its worst ravages in Europe were committed while syphilis was yet unknown. How can leprosy be derived from syphilis, be its 'fourth stage?' If the 'fourth stage' theory be true, why do not numerous cases of leprosy appear simultaneously wherever syphilis has prevailed? Neglected syphilis, syphilis not thoroughly treated, or not treated at all, is common enough the world

over; but we do not find such cases running on into leprosy. The Kamschatkans are very abundantly diseased with syphilis and have been for a long time, but leprosy does not prevail among them. As a fact, we find syphilis producing only its like, syphilis, and leprosy only its like, leprosy. Inoculate syphilis in any inoculable stage, and we get but the one and the same disease syphilis, which to scientific men the world over has thus far presented but three, not four stages.

"Again leprosy appears in groups, affecting families and people living together; it does not spring up sporadically here and there. If any one has leprosy it will be found he has been exposed to the contagion of leprosy in one way or in another. I have carefully examined hundreds of cases of leprosy, talked with them in their own language and learned their histories, and have, with only a few exceptions, traced the origin of their disease to previous leprous intimacies or relations.

"It is true the Hawaiians were extensively diseased with syphilis before the appearance of leprosy among them, but they *were not all diseased, and are not to-day ;* there is a very considerable majority who are exempt. I look upon it as an unjust aspersion of this race to make such a sweeping assertion regarding them as has been made on this point.

"In order to satisfy the condition of the 'fourth stage' theory argument, it must be clearly proven that every leper was first syphilitic, and that none but those having had syphilis in an advanced, or third stage, have shown leprosy, the so-called 'fourth stage.'

"But as a fact, there are plenty of cases of uncomplicated leprosy among the Hawaiians who had been and are free from syphilis. It will not do to assume that every ache and rheumatoid pain, every indurated lymphatic gland, every necrosed bone, every cracked and fissured tongue comes of syphilis. Such loose diagnosis as this deserves no refutation. Again, any one well

acquainted with the Hawaiian language knows, that while the Hawaiians have several words they apply to the lesions of venereal diseases, they have no definite and scientific knowledge of, and have no means of accurately expressing the difference between a simple non-constitutional venereal sore and a genuine Hunterian chancre, the first lesion of syphilis. As a consequence, a Hawaiian will be likely to say he has had syphilis (kaokao, or pala) when he has merely had a non-syphilitic venereal ulcer. A good knowledge of Hawaiian therefore is essential to elicit the facts in such a matter from a Hawaiian patient.

"On the theory of 'hereditary immunity' of Erasmus Wilson, which has curiously enough been adduced, the Hawaiians who have had a century of syphilis, ought by this time to have purchased some amelioration in the disease, and it is not logical to suppose that leprosy, a vastly more severe and stubborn disease than any stage of syphilis, is related to this by any such principle as this. The argument works the wrong way.

"The clinical history of leprosy and syphilis differ widely. It is impossible to go deeply into the differential diagnosis of these two diseases. But briefly:

"1—The period which the disease lies latent in the system in syphilis is reckoned only by months, whereas, in leprosy it is prolonged to years.

"2—The skin symptoms of leprosy and of syphilis are markedly different. In patients, who like many of our Hawaiian lepers, have both syphilis and leprosy at the same time, there must and do occur puzzling cases, but study will disenravel the tangle.

"3—The nervous symptoms, the insensitiveness to touch (anæsthesia), and to pain (analgæsia), and the various palsies, all of which are very common to leprosy and are a marked feature in this disease, are rare in syphilis, and when they do occur in syphilis, are of quite a different type and anatomical distribution. It is true that (anæsthesia and analgæsia) insensitiveness to touch and pain,

occur in syphilis as pointed out by Fournier, as well as in leprosy. But insensitiveness to touch and pain are *not diagnostic to leprosy* by any means, nor does Erasmus Wilson anywhere say that they are. Any physician well acquainted with the various manifestations of nervous diseases would not be guilty of such a blunder. These changes of sensibility are diagnostic of no one disease, but are common to several. Leprosy is to be diagnosticated by no one such rational symptom, but by a group of symptoms taken together. But what does Fournier say? His words are, (Lecons sur le syphilis, p. 800): 'Do we not see elsewhere similar phenomena produced in a good number of poisonings; poisoning by lead, arsenic, alcohol, etc.? Pathological analogy testifies strongly in favor of the opinion we here maintain, and permits us to believe that the poison of syphilis can, like other poisons, react on sensibility. * * * * They are not then peculiar to leprosy and syphilis.'

"But to illustrate the difference in the palsy produced by syphilis and that by leprosy. A certain nerve branch which supplies the circular muscle that closes the eye, is a favorite seat of palsy in leprosy, producing the familiar deformity (known by the Hawaiians as *makahelei*) which makes it impossible to close the eye. This nerve branch is very rarely affected in syphilis. Leprosy in a large porportion of cases affects the ulnar and other nerves of the arm and hand; affections of these nerves by syphilis are pathological curiosities.

"The ulcerations of leprosy and of syphilis are quite distinct and need cause confusion only when occurring in a mixed case. In leprosy the bones of the extremities are the ones almost exclusively affected. In syphilis the bones of the head and shafts of the limbs are the ones principally seized upon. In syphilis nodes are often formed, not so in leprosy.

"5.—Hereditary syphilis produces a peculiar and well-known deformity of the teeth; the teeth of lepers are not affected.

"6.—Again syphilis is a curable and leprosy, thus far, eminently an incurable disease. For testimony on this point read such authors as Fournier, Bumstead and Taylor, etc. To quote from Bumstead and Taylor 'we know that the great majority of cases (of syphilis) (estimated as high as ninety-five per cent.) which have been thoroughly treated are absolutely cured, and are never followed by a relapse.'" * * *

Drs. Arning, McGrew, Monritz, and others, who have observed the disease as it appears in the Hawaiian Islands, agree unanimously with Dr. Emerson that leprosy and syphilis are distinct diseases. This opinion is ably sustained in the report by Dr. Saxe, which will be read as a supplementary report to this. Dr. Hœgh, referred to above, declares emphatically that "leprosy is in no way related to syphilis." As proof he states, that "lepers become syphilitic and syphilitics become lepers," and again: "In those districts of Norway, where leprosy prevails, syphilis is rare, and where syphilis is common, leprosy is almost unknown." Dr. Kaurin, says: "Leprosy and syphilis are two entirely different diseases;" and Dr. Danielssen, who has been engaged in the study and care of leprosy for more than half a century, and who with Boeck, the eminent syphilographer, who was the first to identify *Radesyge* as syphilis, has written a large treatise on leprosy, published in Paris in 1848, and a later work on "anæsthetic leprosy" published in Christiania in 1862, declares positively that "leprosy is in no way related to syphilis."

Dr. H. N. Allen of Seoul, Korea, who has had a large experience in the treatment of leprosy in that country, observes that while syphilis is almost universal there, he finds no reason for believing leprosy a modified form of syphilis, though he thinks it may be eventually found that syphilis is the product of leprosy and kindred diseases by evolution. He has often seen leprosy and syphilis coexistent in the same individual, and he holds that the

reputation that western medicine has in Korea for curing leprosy is due to the syphilis in these complicated cases.

Prof. C. F. Dight of the American College at Beirut, of Syria, who has made a careful study of the disease as it appears in that country, and who has written an article on Asiatic leprosy, which was published in the *Physician and Surgeon* (Ann Arbor,) March, 1885, states most emphatically in a recent letter to the Secretary of this Committee, Dr. J. C. Lundberg, that he does not believe it has any connection or relation in any way with syphilis.

In summing up the evidence here adduced, your committee has arrived at the following conclusions:

1st. That leprosy is a bacillary disease, dependent upon a special bacillus, the *Bacillus Lepræ*. As regards the habitat of this bacillus Dr. Arning says:

"1. The Bacillus is found plentifully in all nodules of the tubercular cases, and likewise in the diffused swellings of the skin in the tubercular cases.

"2. It is found in similar quantity in the nodules and diffused infiltrations of the mucous membranes of the mouth, throat, nose, rectum, and large intestine.

"3. In cases of softening and breaking of these nodules the bacillus is mixed with the discharge in great quantities. The presence of sores in the mouth, throat and nose causes large numbers of bacilli to be contained in the saliva and the mucous discharge from the nose. In leprous diarrhœa, which closely simulates dysentery, but which I have been able to trace to leprous, not dysenteric ulcerations of the bowels, I have been able to detect the bacillus in the feces.

"4. In the so-called anæsthetic cases the bacillus is not found in the anæsthetic patches nor in the chronic sores of necrotic parts of skin, tissue and bone, but as nerve excisions have proved to me, the nerves supplying these mutilated parts with vitality.

"5. The bacillus can not be found in the bright red patches, so frequently ushering in the first formidable

attack of the disease and mostly occurring on the face. These patches are always located in the distribution of some larger nerve, and are seats of local vasomotoric congestion based on leprous disease of this nerve.

"6. The bacillus can not be found in the urine of lepers, which is accredited by the Chinese to be the infection carrier par excellence.

"7. The bacillus as such can not be found in the blood, not even during the febrile attacks marking the progress of the disease."

2d. That the several varieties of leprosy are only different forms of the same disease.

3d. That the disease is both hereditary and contagious; that the hereditary influence is strongest in the female line of descent, and that it often, in conformity with the well-known law of atavism, skips one generation to re-appear in the next; that contagion may be both direct and indirect, and that a few individuals seem to enjoy absolute immunity against this as against other contagious diseases.

4th. That diet, climate, soil, etc., are not etiological factors, except that they may, in common with other unsanitary conditions, act as predisposing causes or aggravate the disease when once contracted.

5th. That leprosy and syphilis are two entirely distinct diseases. We, however, believe that persons whose constitutions have been broken down by syphilis, are less able to resist the "contagion" of leprosy, and that leprosy complicated with syphilis, runs a more rapid course towards a fatal termination, than leprosy pure and simple.

In view, then, of the overwhelming preponderance of testimony in favor of the contagiousness of leprosy, and taking into consideration the close commercial relations which exist between California and countries where leprosy is endemic, San Francisco being in fact the great

gateway to the United States from Asia and Polynesia, it seems to your committee that we owe it as a duty, not only to ourselves, but to this great nation, to be watchful and not allow leprosy to get a foothold among us. Dr. Fitch reports the existence of seven cases of leprosy in this city—all whites ; a Mexican woman in Oakland who is a leper ; another case in Monterey County, an American, and another, a white man, in Sonoma County, who had it some time ago, but who has apparently been cured.

Dr. G. G. Tyrrell, of Sacramento, after diligent inquiry has failed to find any cases in his section of the State.

Dr. H. S. Orme, of Los Angeles, sends the following report of cases seen by him in Southern California—all Chinese :

LOS ANGELES, CAL., April 5, 1887.

" *To W. F. McNutt, Esq., M. D.:*

MY DEAR DOCTOR.—Three cases were found and reported to the City Health Officer in 1883 and '84, and died in 1884.

These were well marked cases, ragpickers, and an effort I think was made to have them returned to China, but failed. I think the San Francisco authorities refused to allow them to pass through San Francisco, etc.

The (4) next case (in which was well marked anæsthesia), was in 1885 and '86, and is said to have died about November, 1886.

Next (5) case (seen also at my request by Dr. M. Hagan, who is familiar with the disease, having resided in the Sandwich Islands), was pronounced as undoubtedly leprosy ; although only one foot was affected with a mucous patch or ulcer—this was in May, 1886. When I failed to cure this case, I am sorry that then I lost sight of it, although I endeavored to keep trace of him through other Chinamen.

The sixth and last case I saw again as late as to-day, April 5, '87. His is a well marked case of (tubercular) leprosy. This Chinaman is about 45 years old, well built and well

nourished for one of his race, says he has had the disease five or six years. I have made arrangements to try and get his photograph, and will send it to you if I succeed. He followed ragpicking until he became so far advanced with the disease as to compel his isolating himself away from Chinatown, on the outskirts of the city, down among the willows near the Los Angeles River, where he lives in a small wooden shanty all alone, selling a little kindling and willow wood to Chinamen for a scant living.

With the highest regard, etc., as ever,

Truly yours,

H. S. ORME.

Your Committee would, therefore, respectfully recommend:

1st. That a strict quarantine be established against leprosy, and that all lepers attempting to enter this country be returned to whence they came.

2d. That those already here, or that develop here, be rigidly segregated. We suggest that a contract be made, if possible, with the Hawaiian government to have all Chinese lepers cared for at the leper settlement on Molokai. In this connection we wish to enter our earnest protest against the use of the smallpox hospital as a leper hospital. It is an outrageous shame that any one who may be unfortunate enough to be stricken down with smallpox and removed to the hospital, should in addition be exposed to the contagion of leprosy. The failure to provide a special place for the segregation of those afflicted with leprosy, we cannot but regard as criminal neglect.

3d. That the bodies of deceased lepers be cremated, or buried in lime as suggested by Dr. Arning, and their personal effects destroyed.

To those interested in the further study of leprosy the following works, a list of which has been furnished us by Dr. Edward Kaurin of Norway, are especially recommended:

1st. Danielssen et Boeck. Traite de la Spedalskhed on Elephantiasis des Grecs. Paris; 1848. Avec Atlas.

2d. Danielssen. Lepre anaisthetique, dans le grand recueil d'Observations sur les maladies de la peau, par Boeck et Danielssen. Christiania; 1862.

8d. Drognat-Landre. De la contagion de la lepre. Paris; 1869.

4th. Traite pratique et theorique de la Lepre par Henri Leloir. Paris; 1886.

TREMDELES:

5th. The Leprous Diseases of the Eye. By Dr. O. B. Bull and Dr. G. A. Hansen. Christiania; 1873.

6th. An Abstract of Lectures on Lepra. By F. L. Bidenkap. Christiania; 1886.

7th. Om Ofienlidelser hos de Spedalske ved Reknæs Pleiestiftelse af Dr. Edv. Kaurin. (Tidsskrift for praktisk Medicin. Christiania; 1885, No. 5 og 6.)

8. Om dem nye Lov angaaende Spedalskhed af Dr. Edv. Kaurin (Medicinsk Revue. Bergen; 1885, 11te Hefte.)

9th. Et Tilfælde of Spedalskhed af Dr. Edv. Kaurin (Tidsskrift for praktisk Medicin. Christiania; 1886, No. 23 (quoted in this report.)

SUPPLEMENTAL REPORT ON LEPROSY.

By A. W. SAXE, M. D., Santa Clara.

Dr. M. F. McNutt, Chairman of Committee on Leprosy.

DEAR SIR :—The question of the relation of leprosy to syphilis, and its communicability from one person to another, has been discussed by the most eminent observers in all parts of the world, where leprosy is endemic, for the last fifty years. The general consensus of opinion has been that the disease is communicable, but the mode of communication is unknown. The question of its relation to syphilis has been lately revived. The importance of the question in its relation to the etiology of leprosy, prompted me to make special enquiry into the history of the lepers, confined at the leper settlement of Kalawao, on the island of Molokai, H. I., with reference to their syphilitic antecedents.

My inquiries were addressed to Mr. R. W. Meyer, with whom I have been intimately acquainted during the last seven years, and who has been the superintendent of the leper settlement Suise, soon after it was established in 1864. It may be well to know the character of the witness and the value of his testimony. Mr. Meyer is a German, educated as a civil engineer ; a good amateur naturalist, having been educated as an acute and accurate observer, and in the scientific modes of induction ; has the confidence and respect of the government, and the best citizens of the Kingdom. He has been called upon

to administer upon and settle large estates involving millions of dollars, which he has done to the entire satisfaction of all parties interested. He owns a large estate on the island of Molokai, where he is engaged in sugar planting and cattle raising. Occupies a number of important government functions on the Island, and is entitled to the utmost confidence as an observer, and I will add, in the truthfulness of his statements, and in the value of his opinions.

Question: "Do you know of any cases of leprosy that have no antecedent syphilitic history?"

[REPLY.]

HONOLULU, Feb. 18, 1886.

Dr. A. W. Saxe, Santa Clara, Cal.

DEAR SIR: Since my last letter I have visited the leper settlement and ascertained the history of several cases of leprosy, which if true, would prove the disease to be communicable, and independent of syphilis. In using the words "*if true*," I mean I believe the various statements to be true—lacking the impossible absolute proof—and admitting the possibility of error.

The following are the cases which I investigated:

Father Damien, Catholic priest, age 45 years, native of Belgium, arrived at these islands twenty years ago; went to the leper settlement in 1873; was then a strong man, looking healthy and vigorous. He shows now, symptoms of tubercular leprosy. He declares he never had, during any period of his life, syphilitic disorder of any kind, and that all the members of his family, father, mother and brothers, were strong, healthy people.

Drs. Arning and Monritz have examined Father Damien, and neither has discovered any evidence of syphilitic history. I have asked these two gentlemen, and they both confirm the above statements. Father

Damien has no idea how he contracted the disease, but attributes it to having lived among these people. He also believes he had signs of the disease six years ago.

Ambrose Hutchinson, the assistant superintendent of the leper settlement, is a half-cast, about 28 years of age; has the anæsthetic form of leprosy. Arrived at the settlement six years ago. Symptoms of the disease appeared on him at the age of 14 years. I have been intimately acquainted with his father, Dr. F. H. Hutchinson, a Scotchman by birth, a tall, strong, healthy man, who is now living in Melbourne, Australia, where he is a physician to a hospital. I am also acquainted with his mother, a strong healthy woman, now living with her son, Ambrose. Dr. Hutchinson had two sons and one daughter. The daughter is married and living at Melbourne. The other son is now living on these islands, and shows no signs of the disease. Ambrose Hutchinson has never had syphilitic disease; never had sexual connection until twenty-three years of age, and not before he was sent to the leper settlement. He believes he contracted the disease from the following causes. During his childhood he was much in company of an old man, who afterwards died a leper. A second possible cause is, that one of his schoolmates was being examined by Dr. Storrs, then government physician, on certain anesthetic spots, and patches on his body. The doctor forgot his needle, and the boys imitated the doctor's examination to see if they could bear the puncture without flinching. Ambrose was the first to use the needle. Two years after this incident the leprosy appeared on him. But he thinks it more probable that he contracted it from the old man with whom he slept in the same bed, he having the same form of leprosy.

"Johann Gaisen, a German, 42 years of age—a leper of tubercular form. He never had syphilis at any time in his life. Is a sober, steady man. Is m

three children. One child seven years old, has signs of leprosy. He, Gaisen, attributes his disease to his having been bitten by a native with whom he was quarreling. This native died a leper at the settlement. The disease appeared on Gaisen seven years after he was bitten by the native. The man who bit Gaisen had the tubercular form of leprosy.

"Charles Tries, also a German, 55 years of age, has leprosy of mixed form. He acknowledges having had pox in his early days, but was completely cured of it before arriving at these Islands. Tries is married to a native woman who was formerly the wife of a native, who abandoned her and went to Salt Lake, Utah, where he was at last accounts, a leper. The wife of Tries has leprous patches on her back, which she had when he married her. But it has not progressed. She is now 33 years old, looking strong and healthy, is quite good looking, and shows no signs of the disease in her face. But Tries is confident he contracted the disease from her. You have seen and conversed with this man at my house. You may remember him.

"Uluihi, a strong, healthy looking native woman about 55 years of age ; never had syphilitic disease of any kind; has become a leper since the last year. Uluihi came to the settlement with her husband. Neither were lepers, but had four children, one of which, Kawelo, was a leper. To care for this son they came to the settlement. His leprosy was of the tubercular form. A younger sister subsequently became a leper of the same form, and both children died of the disease. After this the husband died and the widow soon married a leper husband, but has become a leper of the tubercular form. She is convinced that she contracted the disease from her son.

"Kamai, a native woman, aged 50 years. Came to the [illegible]ment [illegible] [illegible]rs ago. Has been married three [illegible] Two of her husbands were

lepers of the anesthetic form. She has never had syphilis in any form, but one of her husbands, who was not a leper, had syphilis and died of heart disease. This woman is now a leper, and of the anesthetic form, like her two husbands. She is the woman mentioned by Dr. F. in the *Western Lancet*, page 528, where he asserts she has not contracted the disease. I am not a medical man, but have seen leprosy in all its stages during a period of twenty years. I have made it my business to see this woman. She is a leper, and has long since been declared a leper by Dr. Mowritz, the resident physician, and her name entered on the books.

"I could mention other cases, but as neither of them can offer positive proofs, only a strong probability of the disease being communicated independently of syphilis, I close herewith. Being ever ready to answer any inquiries on this subject to the best of my knowledge and ability.

"I remain, most respectfully yours,

"R. W. MEYER."

In a subsequent letter Mr. Meyer writes as follows: "Leprosy is spreading among the white population of these Islands. Only two evenings ago Dr. Trousseau related to me the case of a young man employed in one of the stores of Honolulu, having contracted the disease. It appeared on the young man about four years ago. The doctor cannot account for it except on the theory of contagion. I am personally acquainted with the father, a Scotchman I think, and know it was not through inheritance, and the father assured me that the son was too young when the disease appeared, to believe it could have been contracted through sexual intercourse.

"From my own observatio[illegible] firmly believe [illegible] ease to be communicable, [illegible] a specif[illegible] has been discovered, the [illegible] segre[illegible] to be the only preventive [illegible]nd."

The foregoing interesting statement of facts by so competent an observer, is worthy of careful consideration, which I have no doubt all thoughtful medical men will duly appreciate. A report in the *Annals of Surgery*, by Dr. P. S. Abraham, which appeared in the *Western Lancet* for January, 1887, points in the same direction.

There can be no room for rational doubt that there are specific characteristics in leprosy, that have never been developed in syphilis in any of its stages. To which may be added the well known fact that leprosy has never been developed from syphilis in any of the most populous regions of the earth, except where leprosy is endemic.

The well known natural history of the disease which has been furnished us by the recorded observations of eminent physicians in all parts of the world, shows that it is communicable. Also that bad hygienic conditions are the chief factor in the aggressive character of the disease. That where the hygienic conditions of a leprous population are improved, the aggressive character of the disease abates, and measurably disappears, as in the case of Southern Europe, Norway, Sweden, and the coasts of England and Scotland. That lepers immigrating from Norway and Sweden to Minnesota, Iowa and Wisconsin, have improved health, and so far as reported, have not communicated the disease to others.

May we not rationally infer that our vitalizing climate with abundant and cheap food, can never afford those elements [illegible] litions upon which the disease depends for its s[illegible] at by rigid segregation of lepers as soon as [illegible] the occasional appearance of the disease by [illegible] n sh[illegible] cause no serious alarm.

'Fi[illegible] by [illegible] nditions, necessary to the [illegible] ound in the densely popu- [illegible] large cities, may be true.

But if our health officers are vigilant, and our sanitary laws are enforced, there need be no serious apprehension.

There remains, however, the fact, that white persons residing for any length of time among lepers, or in any locality where the disease is endemic, are liable to contract it, and they should observe every precaution during any prolonged sojourn in such communities.

OPERATION

FOR THE

RADICAL CURE OF INGUINAL HERNIA.

By E. B. ROBERTSON, M. D., of Jackson.

At the meeting of this Society for the year 1880, I exhibited a truss pad—of my own invention—for the radical cure of inguinal hernia. Since then I have used the pad with diversified results. In some cases in which the patient could be persuaded to endure the suffering necessary to induce the required amount of adhesive inflammation, the results were quite satisfactory, but in others there was nothing gained by the effort. I have recently resorted to another method, which is nothing more than a modification of Gerdy's operation. The modification, however, will be found to be entirely new. I have used this operation in but one case—of course not sufficient to establish a principle—the results of which were sufficiently satisfactory to justify its being made known to the profession.

Stats Cangress, aged 40 years, a native of Greece, of moderately good constitution, became ruptured about two years ago, and after the most persistent use of my truss pad, was not benefited in the least. In fact I found no small difficulty in retaining the hernia. Finally, at the earnest solicitation of the sufferer, I determined to attempt an operation for the radical cure of the malady.

After a brief period of medicinal and hygienic preparation, on the 21st of January last (1887) the operation was resorted to, described as follows:

The patient lying on his back, chloroform administered to the extent of complete anæsthesia, an incision was made through the skin only, about three inches in length, from the anterior edge of the scrotum obliquely upwards and outwards, directly over the external inguinal ring. The skin was dissected up for about one inch on either side of the incision, leaving as much of the superficial fascia as possible. The subcutaneous tissue, consisting of the superficial fascia, intercolumnar fascia and cremaster muscle—peritoneal sack if present—with the connective tissue was taken up on the point of the index finger of the left hand, pushed backwards and upwards into the external ring, and as far as possible into the inguinal canal, even to immediately over the internal ring. A long curved needle fixed to a handle, pierced with an eye near its point, and armed with silver wire, was conducted along the finger to the bottom of the blind pouch, thence through the reflected tissue, upwards and inwards, and caused to appear on the surface of the abdomen so as to include about a half inch of the fibres of the internal column of the external ring. The silver wire loop was seized and held by an assistant, and the needle withdrawn; then both ends of the wire were placed in the eye of the needle, which was again introduced in the same way, and brought out on the opposite side of the inguinal canal, so as to include about half an inch of the fibres of the external column. The wire suture thus placed was drawn tightly over pieces of gum catheter after the manner of quilled suture. One other point of quill suture was introduced in the same way, something more than an inch lower down —carefully avoiding the spermatic cord—by which the columns were brought nearly into coaptation—the reflected tissue only intervening, thereby closing up

the breach. The edges of the incised skin were brought together by several interrupted silk sutures, which concluded the operation. Cold water on lint, and kept constantly moist, constituted the only dressing for the first eight days after the operation, when the sutures were removed and vaseline substituted for the water as dressing. This patient was kept in bed for three weeks, when the incised wound was healed, and the wire suture wounds nearly so. He was then supplied with a suitable truss and allowed to get up and walk around.

At present, April 1st, there is every promise of a radical cure in the case. As for myself, I have so much confidence in the method that I shall resort to it again on the next opportunity, without hesitation.

The philosophy of the operation consists in this: The reflected tissue attracts to itself coagulable lymph, forms firm adhesions to surrounding parts in its new situation, and serves as a sort of truss pad for the support of the internal ring, it being well supported and held in place by the columns of the external ring being drawn well together. In Gerdy's operation the skin, as well as the other tissues, is pushed into the inguinal canal, which can only tend to isolate the columns, and as I believe, be a source of weakness, instead of strength to the ring, for the resistance to a recurrence of the malady.

REPORT OF A CASE

OF

CHRONIC PLEURITIC EFFUSION.

(CONTINUED).

By WM. J. G. DAWSON, M. D., St. Helena.

Believing that one case of this kind followed up, is of more practical value than a dozen ordinary cases dropped from sight, I again take the liberty of presenting the same case of Chronic Pleuritic Effusion brought before the last meeting of this Society.

It will be remembered that I ascribed the cause of his trouble to an attack of measles in the winter of 1883 and 1884; that previous to the first operation of thoracentesis, January 26th, 1886, the left plural cavity was full of fluid, the heart greatly pressed to the right side—apex beat being three and a-half inches to the right of the sternum; that although five operations had been performed and one gallon of fluid withdrawn from the chest, yet when examined at the last meeting, the fluid had reformed, again filling the pleural cavity, the apex beat of the heart being found from one and a-half to two inches to the right of the sternum. It was the general opinion of this Society that all the fluid should be drawn off. Accordingly on May 3d I aspirated the chest again,

for the sixth time, withdrawing about eighty-eight ounces of sero-fibrinous fluid (six weeks since last operation).

The heart moved somewhat to the left after this operation. Visit in the evening—pulse very slow, about fifty-six or fifty-eight, and irregular.

June 7th aspirated again; (five weeks since last operation) drew off about fifty-six or fifty-eight ounces. Had to stop on account of pains in chest. After the operation the apex beat of heart was heard to the left of the sternum for the first time. In the evening he complained of pain in chest, and pulse was more frequent than usual, ninety or more; temperature one hundred. The next day found the apex beat two and a fourth inches to the left of the sternum, and considerable air in upper portion of lung.

For about a week he felt pretty well, when he had a severe chill during the night and severe pain in the right side below the nipple, which lasted for two or three weeks. He ran down in flesh and strength, with loss of appetite, and had considerable cough and expectoration. His weight reduced from one hundred and fifty-five pounds to one hundred and thirty-five pounds.

I sent him to San Francisco for a change, where he remained nearly two weeks. He returned July 27th, his appetite somewhat improved, but cough and expectoration continued. On examination found air at upper portion of left lung extending down several inches in front, and to middle of scapula behind; apex beat about two inches to left of sternum; slight dullness at lower border of right lung posteriorly with some crepitation and friction sounds. Put him on muriate of ammonia, quinine, etc., and painted chest with iodine.

July 29th.—Operated for the eighth time (over seven weeks since last operation); drew off about twenty ounces, all that would come. The next day examination reveals friction sounds at base of right lung, on forced inspiration. On left side the condition of things is not

much changed by last operation, only the percussion note seems clearer at the apex, but dullness well marked at the lower portion; apex beat in about the same position; says he feels weak and appetite not so good.

August 3d.—Examination reveals friction sounds in interscapular space on right side, about one and a half inches above the lower border of scapula, exaggerated respiration over the lung in front. On the left side the lung contains considerable air, and the heart is nearly in its natural place. He expectorates quantities of thick, heavy sputa, which smell badly, and this morning he also spat up some blood; he is reducing rapidly in flesh and strength and is much discouraged; temp., 99¼; pulse, 110. I at first thought of sending him home to New York State, but instead he returned to Howell Mountain, and immediately began to build up and increase in weight, and his cough gradually disappeared.

August 29th.—Examination again found dullness on percussion over the greater portion of left lung, except at the apex; respiratory murmur distinct over upper third of left lung; apex beat of heart heard most distinctly about two inches to right of left nipple. Right lung seems in pretty good condition; has gained eight pounds in weight since last note, does not cough so much and feels better; can walk without fatigue; vocal resonance heard less distinctly over the middle of left lung posteriorly than at the base. In September he was able to do such work as hauling wood, milking, picking fruit, etc.

October 15th.—Examination of chest reveals not much change in condition; expectorates pretty freely, at times streaked with blood.

December 23d.—Examination reveals dullness on left side below the third intercostal space anteriorly, and below the spine of the scapula posteriorly; apex beat heard most distinctly about one and a half inches below the left

nipple and about three-fourths inch to the right; condition of right lung normal.

March 13th, 1887.—His weight has increased to one hundred and seventy-five pounds; is able to do almost any kind of farm work, and has not had a hard cold, so far, this winter.

REMARKS.—The total amount of fluid withdrawn in the eight operations amounted to about eighteen and one-quarter pints, over two and a quarter gallons. The result of the treatment is that the patient's heart has returned to its natural position, and about one-third of the upper portion of his left lung contains air. The withdrawal of the larger quantities of fluid was followed by a condition of impaired health, and at one time I feared I would have to send him home to die; but by mountain air he again rallied, and is now the picture of health, and yet the left pleural cavity contains fluid which does not seem to interfere with his general health, and so long as it does not, I feel like letting him "severely" alone.

It will be seen that a chronic pleuritic effusion presents a very different condition of things than an acute effusion, both as to its pathology and treatment; and this fact I think is not sufficiently recognized in comparing cases and the results of treatment by aspiration. Whether the absorbents are the lymphatics or veins, or both, it is evident that owing to long-continued pressure they cannot do the work in chronic cases that they usually perform in acute. The fluid will re-form as in this case, and the question arises, would it be advisable to inject iodine—as in hydrocele—for the radical cure of the trouble?

PROGRESS

IN THE

ETIOLOGY OF, AND PATHOLOGY OF, DISEASE,

WITH ITS

RELATION TO IMPROVED TREATMENT.

By E. V. LONIGO, M. D., San Francisco.

Hon. President and Members of the State Medical Society:

In selecting the present subject for my paper, I aimed in a direction of more interest to the student and young practitioner than to the generality of the profession here assembled, for the latter constitutes already by itself an active contributing body to the progress of our present knowledge of pathology. And as a young professional man in the narrow domain of his experience is not apt to discover practical, new facts, nor often afford original contributions to the theory and practice of medicine, I, as such, beg to be excused beforehand, if I shall not announce in my paper the whereabouts of the philosopher's stone.

Not very far back from our present time, when a student had completed his preliminary course of study in Natural Sciences, and was commencing the one of Medicine, he must have been submitted to a very painful intellectual crisis. His mind had been trained already to the

rigid method of technical positiveness, through which the studies of physics, chemistry, botany, zoology and modern physiology were conducted; hence, when entering in the new field of medical studies, he found himself as abruptly transferred to a new unsettled region, widely severed from the serene one into which his mind had previously traveled.

Natural sciences during their first development maintained as we know, more or less a self independence, one from the other; and this independence among sister sciences was greater in proportion to their distance from the discovery of certain laws that in our present time at last determine their foundation. This independence only ceased when their present degree of perfection was reached and then, at last, the student was enabled to recognize that they all were bound in one harmonious whole by a tie of intimate relationship.

Up to the last century medicine was considered a science, which had for its sole object the preservation of the human health and the cure of the various morbid conditions that can affect it. The practical needs of humanity gave origin to medicine long before the study of nature took a scientific form, and the great accumulation of pathological facts, collected in the lapse of centuries, only represented something extrinsic which had no necessary connection with other biological sciences. It was an art more than a science, and every effort devised in order to co-ordinate pathological facts, and to convert this art into a science sadly failed, until it continued to stand alone by itself. Hence in the previous days, a morbid process was sufficiently explained when its cause was ascribed to a hidden power, as that of the soul of Stahl, or to the vital principle ; or again, to imaginary morbid states, as the phlogistic, albuminous and dissolvent diathesis and similar conditions. One system of medicine followed another and took root in medical schools for more or less time, according to the authority or social influence of the men who had invented it.

Meanwhile the improvement in physiology had laid the first stone in the foundation of a science of pathology. The intimate connection of medicine with biology, became evident to every one, even to the most skeptical of the old school. In fact, while it is obvious, as no man of common sense can deny, that morbid states are due to a disturbance of the normal activities of living bodies, it must also be obvious that a scientific explanation of morbid states, could not have been obtained while these normal activities were ignored or imperfectly known.

As we all know, living matter, in the very great variety of its aggregates, which constitute animal and vegetable organisms, has an inherited tendency to manifest a definite series of morphological and physiological phenomena, which phenomena in certain given conditions of life always remain the same as a characteristic of species. This inherited tendency of living matter determines the normal biological type of species. If, however, for these given conditions of life others were substituted, the cycles of vital phenomena characteristic of the normal biological type of species, would be disturbed; the organic functions and the mutual relations or affinities of the same would be altered; also the morphological structure would become abnormal. We are also taught that deviations from biological normality can vary indefinitely both in extension and importance; that some of them are harmless and sometimes are useful, as for instance, those which gradually modify the biological type of species until it is enabled to sustain a struggle for existence in a condition of life differing very much from the original one. But that others, and many of them, are true morbid states, which disturb more or less seriously, often fatally, the economy of the organism in which they are produced. A line of demarcation between the first and the second category of deviations is not well defined, and we do not know if it ever will be with exactness. But the assemblage of facts that pertain to the

latter class of deviations from the normal biological type has determined that branch of biology which is called pathology. There is now a science of medicine, Pathology, and its indirect connection with the curative art must be suggestive to all, for it has already given a solid philosophical principle to hygiene, practice of medicine and surgery, and doomed *empirism* to perish among the worthless records of the past.

The respect due to a still living past recalls the fact that the very founder of the study of pathological anatomy, was Morgagni, alumnus of Valsalva, who in the title of his classic book "*De sedibus et causis morborum per anatomen indagatis* (Venice 1761) indicated its final object, and in order to reach it, worked with all the means which could be afforded in his time. These means were then necessarily limited to anatomical investigations of organs morbidly altered, and to the study of the connection between the structural alterations and clinical facts. The new science took then the name of Pathological Anatomy, a name which it has kept almost everywhere until the present time, although from its beginning it was anything else but a true anatomy, and now instead, it becomes one of the most important branches of biology. Morgagni, classifying as he did pathological facts according to the anatomical parts in which they were met, and not according to the complex of symptoms which were detected during life in disease, initiated also that study of localizing morbid processes, which study, after having transformed pathology, has now also radically improved therapeutics.

Long before the present resources of the microscope and technical physiology had revealed to us the secrets underlying a field yet thirty years ago unexplored, a man of genius, Bichat, forethought and demonstrated that life in superior organisms is not derived from one single force residing in one centre, but that it is the ultimate and concomitant result of the particular life of the vari-

ous tissues that enter into the composition of this organism. Later studies in physiology and pathology have brought still more evidence of this truth first presented by Bichat. This view of life in superior organism soon after afforded foundation for the cellular pathology of Virchow. Virchow did not limit himself to the study of the different forms of deviations that the cellular elements can assume from a normal state, but demonstrated besides, the embryology of these pathological conditions by illustrating the gradual evolution of abnormal structures and abnormal life from the physiological units, and their associations from the commencement of the morbid process to its completion. Experimental pathology can also be said to be a creation of Virchow, who was the first to make physiological experiments in the search for means by which some morbid processes could partially or entirely involve the organism. In this way he initiated these etiological studies which have lately given to pathology a better position. Therefore, we are now enabled to follow step by step the normal cycle of vital manifestations assumed by the physiological units or cellular elements of tissues, their growth, preservation and decay. We are now enabled to analyze the process of simple or degenerative atrophy and consequent senile marasmus preceding the physiological death of the whole organism, as we are enabled also to detect and to analyze a similar but premature process when manifested instead, in consequence of some pathological alterations. And as it is exceptional that in the course of life the normal cycle of biological events should run its course without ever being disturbed by the action of causes, which more or less extensively, permanently alter the course of the nutritive process, so as to create a partial or general deviation from it, it became an important object of the pathologist to demonstrate the anatomy, physiology, and as far as the present means of investigation permits it, the etiology of these pathological alterations, in order

to determine their relation to clinical symptoms evolved by the affected organism, and to base upon physiological ground the application of therapeutical and preventive means.

True it is, that many abnormal organic states are inherited from parents, and are produced either in intra or extra uterine life under the influence of causes, the nature of which we are often yet unable to accurately determine, and are still left to correct; as those, for instance, which are characterized by a partial or general congenital aplasia of the cerebro-spinal tissues, or of some other tissues. But many others are not beyond the domain of human knowledge and investigation as those due to the direct agency either of organic or inorganic elements retained in the system or derived from without, acting upon the already made tissue, or upon a tissue in the course of development.

These pathological disturbances of cellular life, from whatever cause they might arise, always manifest themselves either with an abnormal destruction of the physiological units composing the tissue, with an abnormal deficiency of their formation, or with abnormal excess of formation. Some of these abnormal destructions and deficiencies of formation are often accompanied by degenerative changes of their elements. And while in osteomalacia and rachitis, for instance, we meet with a diminution of calcareous salts, in case, instead, of metastasis, induced by destructive processes or tumors, calcification or petrification of tissue may result. We are all familiar with the fatty, hyaline, mucous, colloid, amyloid and pigmentary degenerations, and with the non-typical degeneration of still living cells. In pathological condition of the blood, due either to its abnormal excess or loss, or to an abnormal deficiency of its physiological compensation, we meet with alteration and degeneration of blood corpuscles and the formation of non-typical cells not adapted to any normal physiological function, and its

constituents may contain an abnormal presence of fats, cholesterine, sugar, urea, uric acid, hypoxanthin, an abnormal increase or diminution of the inorganic salts, and the appearance of paraglucose, acetone, (H_3C_6O) of carbonate of ammonia, of leucine, tryosine, and of the bodies analogous to peptones, pigmentary and biliary salts, the presence of which elements have their share of influence in the functional disturbances of nutrition.

Hence a method of technical studies has been instituted by pathologists for the demonstration of these two great classes of deviations from the normal state of cellular life and chemical constituents, which method is at the present time almost universally adopted in text books and medical colleges, as a required branch of instruction intended to qualify students in the science and practice of medicine and surgery.

The limited time devoted to the reading of a paper allows me not even to attempt a review of later progress attained in all this branch of medical science, but I may not, perhaps, exceed your kind indulgence if I make a few remarks upon the subject of etiology of some diseases in which micro-organisms are now assumed to play an important role.

It seems that the enthusiasm with which the germ theory has been adopted of late years, often brings forth the influence of preconceived ideas against the calm investigation of all the practical facts which concern hygiene and etiology in miasmatic diseases. In looking back into the records of medicine, I have alluded to the faulty system of appreciating facts by old schools ; yet it should not in all cases be denied to past observers the soundness of their views and experience concerning diseases which are assumed to be due to the direct action of external causes. There are instances where the negative testimony of the past is opposed by the positive testimony of the present ; but there are also instances where the experience of later days has only confirmed the

views of earlier writers, and those views must be accepted in evidence at the present time. Pringle in 1752 wrote: "The hospital of an army when crowded with sick, or when distempers are of putrid nature, or at any time when the air is confined, especially in hot and dry weather, produce a fever of a malignant kind, and very mortal."

In present literature we may occasionally find a return to old modes of thought expressed in a language consistent with modern physiological knowledge.

Miasm or deleterious emanations are evolved from living or dead organic matter—from living, during the course of histolytic change; from dead, during the changes evolved in its reversion to the inorganic state.

In a state of health the living organism gives off gaseous products of the destruction of tissue; these, like poisons, are dangerous in proportion to their concentration, but in diseased conditions the organic emanations operate in many instances independently of concentration, a small dose being apparently as efficient in propagating as a large one. Dead organic matter gives off volatile transition products in the process of ordinary decomposition, which are dangerous in proportion to their concentration; but under conditions of surrounding heat and moisture dead organic matter evolves the essence of disease, which, when taken into the system even in a minute quantity, becomes capable of inducing a specific result.

Material alterations in the chylopoietic and hæmopoietic systems of the organisms, were for ages regarded as the efficient cause of many clinical phenomena. The nervous system has no direct influence, as we learn, in the process of inflammation, for even if all nervous connections are removed from a part, all the phenomena of inflammation can be produced as well. Yet we must admit that impressions on the nervous system figure as an immediate cause of the change in humours over which it exercises a control. And the altered and retained secretions are potent causes of ill health.

In a state of health the transitional products of decomposition of the effete material of the tissues do not accumulate within the system; but in other cases even the ultimate or terminal products are deleterious when retained in the general circulation. When the blood is surcharged with CO_2 the individual dies asphyxiated; when urea or its possible derivative, cyanuric acid, $C_3N_3H_3O_3$, are retained coma supervenes. During the waste of tissues and absence of excretion that are combined in a prolonged febrile attack, irrespective of its causes, typhoid or adynamic symptoms are developed. Pneumonia, remittent fever or any febrile disease of some continuance may assume the clinical feature of rapid and increasing prostration, and other pathological phenomena which being more commonly seen in enteric fever, have been generally spoken of as typhoid symptoms. These are the consequences of a systemic poisoning by retained transitional products.

Therefore a concentration in the individual of transitional products by a failure of the eliminative process has similar tendencies to induce the above mentioned typhoid condition as a concentration of non-specific human miasms, due to over-crowding, may have the tendency to produce typhus, to which fever Pringle undoubtedly, in 1752, alluded.

The individual may then become affected by a self-generated miasm, which has never been previously evolved, and in this there is no assumption of virulence by hypothetical germs.

The tendency to diphtheritic inflammation of the mucous membrane, in cachectic subjects, may be as independent of an associated micro-organism, as the tendency to a typhoid condition may be in the case of prolonged febrile affections.

Again, the records of country practice, emerging from unbiased investigations, assert the *de novo* origin of typhoid fever, and deny its primary derivation from the

affected body. Yet it permits the term 'miasmatic contagions' to be applied to it—miasmatic, because emanating from the decomposition of organic matter, and contagious, because after having originated as a miasm, it is susceptible of transmission, indirectly, from person to person, without a return to the condition of *de novo* origination.

Meanwhile it is recognized that a continuance of hot weather will evolve a typhoid miasm from a soil which may not be filthy in the ordinary acceptation of the term.

Dr. George Derby, of the Massachusetts Board of Health, furnished in 1871 evidence that in the country districts of his State the most frequent single cause to which the prevalence of typhoid fever might have been attributed, was to exposure of the bottom of ponds and reservoirs in seasons of unusual heat. This fact I have also personally experienced in my practice a year and a half ago at a mining camp in this State. Similarly it is recognized that malarial evolution calls for the concurrence of a not drained organic soil, a certain degree of heat and a certain proportion of moisture. An excess of organic matter may develop putrescence, the emanations from which, although harmful, are not causative of malarial diseases proper, but of diarrhœa and continued fever.

Summing up, on the study of the etiology of some specific diseases, we find that malaria is evolved as a miasm from organic matter, and that it has no contagious qualities. Smallpox is due to a contagion which never reverts to a miasmatic origin; but typhoid fever and its congeners, among which is typhus, afford the example of an existing connecting link—miasmatic on the one hand, contagious on the other. As Dr. Charles Smart, U. S. Army, says in his valuable article on this subject: "Nature does not operate *per saltem.* * * * And this is so well known that when a gap occurs we search for the missing link." Should this missing link eventually be

found in the laboratory of the medical naturalist, it would, I believe, clear also the view of the very source of other diseases where micro-organisms are supposed to be the causative agent. It is however upon chemico-organic analysis of air, and microscopy in connection with clinical observations, that we must depend for practical information. In quoting the above principles, I do not intend to refute the entity of certain rudimentary organisms that are often found concomitant with local and systemic affections. The air and water, as all of us can determine with the aid of a microscope, are charged with micrococci, bacteria, bacilli, fungoid spores, etc.; especially so in the summer and in hot climates. But the fact that so many of these low organisms in ordinary circumstances, are comparatively harmless to the human body, which daily absorbs them, while in other instances they will exhibit the power of creating an obnoxious effect and be the direct cause of diseases, will often suggest to the skeptical an amusing argument based upon analogy. He will quote that some higher species, as the insects, for example, after alighting upon a putrifying soil or diseased animal, will act as nature's inoculating needles of malarial fever, malignant pustules, etc., while in other common circumstances they also will be comparatively harmless. And he will ask whether it has been found out if the inoculated pathogenic material from the proboscides of mosquitos and other flies, contain the bacilli of Klebs, Tommasi, Crudeli and Pasteur, or simply saliva. Meanwhile the comparatively recent discovery of the ptomaines suggests caution in the acceptance of a living germ as the direct causative agent of all the morbid phenomena that are associated with contagious diseases.

The existence of ptomaines as definite poisonous principles, derived from decomposing animal and vegetable substances, has been fully established by Selmi in his article on Toxicology (Bologna, 1877.) Before him Letheby separated many of the poisonous principles, and

Dr. W. B. Richardson succeeded in crystallizing the hydrochlorate of a base from a pasmic fluid, and showed it to possess remarkably poisonous effects. But Francesco Selmi first instituted a methodical study of the subject by extracting the ptomaines from an alcoholic solution of decomposing animal substances. These ptomaines obtained by Selmi's method were shown beyond any doubt to possess reactions and properties resembling the alkaloids strychnine, morphine, atropine, delphinine and coniine. Some ptomaines were found containing arsenic, the action of which on frogs was different from that of the volatile arsines, but produced phenomena of torpor, paralysis and systolic inaction of the heart.

Ptomaines are not solely produced by putrefaction of animal substances, but Lombroso and Erba have shown that from the putrefaction of maize and other leguminous substances, a poisonous basic principle is developed which has toxic action similar to that of strychnine.

Bacteria, when introduced in the system in ordinary circumstances, are harmful as foreign bodies acting by mere presence, in proportion to the resistence opposed to their growth and multiplication by the invaded organism. Many of them are commonly and daily destroyed by the oxygenating power of the system ; others, and this cannot be denied, are harmful by conveying to the system poisonous substances (ptomaines ?) which are either excreted or accidentally liberated during their active periods, and which induce symptoms often similar to known alkaloid poisons. Pasteur's bacillus of rabies for instance, which finds its place of selection in the rachidian bulb, produces symptoms almost identical to those of atropine. In the same manner, however, the introduction of simple ptomaines by the stomach, will in some cases induce choleraic symptoms, in others aphthous swelling and diphtheria-like patches in the mucous membrane, motor nervous symptoms, edematous lungs, pneumonia and bronchitis.

Again, *protophytics* or *fungi*, when introduced in the system, there to find a suitable soil to feed and multiply at the expense of the nutrient liquid and oxygen of the tissues, develop, it is said, a process of fermentation, and on this account they are called organized or living ferments. The word germ does not exactly convey the true signification of the term, when referred to this subject, but is applied only in a sense analogous with *source* of diseases. I fail to see its application in our present literature, except in reference to embryology. The embryology of bacilli is yet far from conclusive demonstration of an assumed reproduction of species bearing a specific activity of life of its own.

Liebig, 1839, to explain fermentation, especially the alcoholic, described its process as a molecular motion transmitted by matter already in a state of chemical motion to other matters composed of elements in loose combination. Pasteur afterwards regarded fermentation as immediately dependent on the activity of living cells. Fermentation begins, he said, only when the supply of free oxygen to the cells is restricted. They then begin to abstract oxygen from the compounds contained in the nutrient liquid and so disturb their molecular equilibrium. He based this view upon his discovery of a living ferment always to be found in alcoholic, lactic and acetic fermentation, and he called the process of fermentation a respiratory process. Pasteur went so far as to divide micro-organisms into two great classes. 1. Those which thrive only with free oxygen he called *Aevobes*. 2. Those which do not require free oxygen, but can get it from complex albuminary or sugary compounds, he called *Anocrobes*. Chemical synthesis affords examples of similar respiratory phenomena in the formation of new compounds from other compounds.

Liebig died in 1873 still adhering to his original theory and refusing to accept the vitalistic theory of Pasteur. By the most it was said that he was a solitary figure

defending a shattered theory. Yet fermentation is not in all cases a vital process, or at least all fermentive processes do not depend upon living ferments. We have living ferments and lifeless as well. It is known that the lifeless ferment of yeast solution is necessary to invert cane sugar into grape sugar before the grape sugar, in its turn, becomes changed into alcohol and CO_2 and particles of acetic acid, succinic acid and glycerine, by the action of the living ferment of yeast, *Torula Cerevisiæ.* $C_{12} H_{22} O_{11} + H_2 O = C_6 H_{12} O_6 + C_6 H_{12} O_6$ and $C_6 H_{12} O_6 = C_2 H_5 HO + 2CO_2$, etc.

This same process of inverting is obtained by warming cane sugar solution with dilute acids, other lifeless ferments.

In like manner, starch, through the action of mineral ferments ($H_2 SO_4$ or HCl) and by a process of hydration at a boiling point, is changed into dextrine and dextrose, or the same starch below the boiling point may be changed into dextrine and maltose by the action of diastase, (a vegetable fibrin from germinating seeds.) $C_{24} H_{40} O_{20} + 3H_2O = C_6 H_{10} O_5 + 3C_6 H_{12} O_6$, or in the second case $C_{24} H_{40} O_{20} + 3H_2O = 2C_6 H_{10} O_5 + C_{12} H_{22} O_{11} 2H_2 O$.

The yeast solution is a nitrogenous substance soluble in water and glycerole; it is formed from the gluten of vegetable albuminous matters and has a fermentive property almost identical with that of diastase.

Torula Cerevisiæ, the fungous living ferment of yeast, has never been demonstrated to exist, as such, free in nature, but it only will show itself in evidence as described, when a chemical admixture of some albuminous or nitrogenous substance containing phosphates of potash and a small amount of ammoniacal salts are brought in contact with hydrocarbons and free air. Hence, its pre-existence without this association of combined elements is hypothetical. The yeast ferment thus formed, it is said, will derive its carbon from a portion of the sugar, and its

nitrogen, phosphorus and sulphur from the mineral salt present in the yeast. Hence, the development of the Torula Cerevisiæ is intimately concomitant with the process of fermentation and is hypothetical without it.

It has been established through experiments that fermentation cannot take place without the admission of free air with its dust; but no one has given as yet a satisfactory explanation why dust in the air makes itself evident as *a living ferment*, only when it comes in contact with nitrogenous substance, a certain amount of heat and a certain amount of moisture. It was then necessary for observers to institute a theoretical dogma and to call this dust, germ. They, however, omitted all consideration that rationally a germ must either originate from a definite species, or *de novo* from other elements in loose combination. Now, is yeast a natural species by itself or an artificial combination?

Meanwhile there are lifeless ferments, and this is an important point for us to acknowledge. The more familiar among them are pepsin, ptyalin, amylopsine, and trypsin—all concerned in the process of digestion—the diastase of malt, emulsion of sweet and bitter almonds. The mineral acids are also known as ferments. Hence another gap would be filled by searching the missing link which should reconcile the theory of Liebig, with the truth also emerging from the vitalistic experiments of Pasteur—lifeless ferments on one hand, living ferments on the other. And the phenomena of fermentation will then be purely sought in the domain of molecular physics. The constant form and specific reaction of micrococci, bacteria, bacilli, vibriones and spirilli, as observed from human culture, or artificial culture, with the required staining for their recognition under the microscope, prove of no practical importance to us beyond the fact that they may act as inoculating media of infection, and that under this principle they even may be utilized as preventives of dis-

ease as soon as their acquired virulence has been eliminated by previous repeated cultures upon lower animals. But as to their psychological character and their origin, let us be content to consider them as purely and simply representatives of a synthetic product from complex animal and vegetable substances of transition ; to consider them as transient molecules, which only eventually assumed their motor power life-like from a collective concentration of different elements of animal and vegetable origin, which always may temporarily preserve a certain activity, and affiliate and differentiate until they are completely reversed into the simple inorganic state. For in fact the chemical constituents of those rudimentary organisms are unstable, and their changes appear to depend upon the character of the nutrient liquid in which they migrate, thrive and multiply. Hence the suggested device of modifying their fermenting nature in the soil of higher organisms by previous process of culture which often lessens their specific virulence and renders them a useful base for preventive treatment by inoculation, provided that the inoculated individual be not of a cachectic constitution, and instead be seriously affected by it. The fermenting power assumed by microbes will obviously cease with their death, but this should not suggest to any one's mind that a soul of Stahl in those innocent prototypes has ceased to evolve its evil effects to the surrounding creation. Let us simply say that a chemical synthesis has ceased in one direction, and that the same elements have diffused in some other ; for molecular action never ceases. Let us consider the cure of contagious and miasmatic diseases as not solely depending upon the death of the causative microbe, but principally upon the catalytic effect of reagents over their acquired chemical constituents and media.

And when the virtue of such reagents as some preparations of mercury, chlorine, bromine, iodine, boric acid, salicylic acid, and other acids or akaline salts, etc., has

been practically established therapeutically, these reagents will deserve as much of their original qualification of *alteratives* as they are now fashionably called *germicides*. In studying the etiology of diseases, we need not however engulf ourselves in the deceiving path of hypothesis. But I believe that in our researches for the missing link, we can find no better guide than that afforded by physiological chemistry and practical hygiene in their intimate relation with pathological anatomy and clinical facts. Complex animal and vegetable organisms may locally and functionally become affected by retained transitional products of their tissues in the process of ordinary decomposition. Also the air, that mystic realm of an almost invisible crowd of living and lifeless dust, may carry injury to them, while the latter eventually become saturated with those same transitional products, and when these products, through the concurrence of local concentration, heat and moisture have entered into new combinations instead of having reverted to the simple inorganic state.

Species do not create molecular action, properly speaking; but the never-ceasing molecular action generates chemical combinations, and modifies species, the forms of which are unstable, if not incidental to the continual evolution of the elements in Nature.

The limits of genera are not defined, and might never be, but species touch and families affiliate in their generic character—the fauna and flora extend in continous series. And all depend and are governed by universal molecular action.

THE HISTORY OF QUARANTINE.

DISINFECTANTS—HOW APPLIED.

By W. F. McALLISTER, M.D., Quarantine Officer, San Francisco.

The history of quarantine may be comprised in three divisions. The first, comprising the middle ages, was the period of leprosy. The second, commencing at the end of the fourteenth century and ending at the early part of the present, was the period of quarantine against plagues. The third, or modern period, relates to the sanitary measures employed against smallpox, yellow fever and cholera. One of the oldest known diseases is leprosy. Moses prescribed the isolation of lepers; and the same plan is still pursued in the Sandwich Islands, where leprosy is perhaps more distinct and recognizable than in other countries. In this first period, the primitive quarantine of lepers was their expulsion from the town or village of their residence. They settled in the suburbs or by the wayside, where they were supplied by the alms of the charitable. From this the custom grew of building huts to receive the lepers. These primitive pest-houses were usually some distance from the city, except in Spain; the lazar-house being built in the thickly settled portion of the town. Finally this diseased element was wholly sequestrated from the population and

concentrated on the Island of Samos, in the Mediterranean Archipelago.

So much for the first period of quarantine. It was not until the appearance of the plague, in 1348–50, that the regime of quarantine against pestilential affections was fully inaugurated. At this period Venice was at the height of her commercial prosperity. Her vessels covered the Mediterranean, and consequently her port was more exposed than any other, not only to the Black plague, but also to the Egyptian.

The officials created a health bureau, and then a lazaretto ; and the example was speedily followed by other ports exposed to the contagion. It was about this time that the term quarantine, or forty days, was set as necessary for the observation of those who had been exposed to infectious diseases. The first work which speaks of contagion, as it is now understood, was published by Fracastorius about the middle of the sixteenth century.

According to him, a specific virus arises from the body of the sick, extends a short distance, and attaches itself to certain substances, which thus become contaminated. This contamination remains, and may be transported unknown distances and infect entire communities.

Masaria, who subsequently published a work on the same subject, showed the immunity of persons who remained shut up in their chateaux or monasteries during an epidemic. This proposal to isolate the sick was eagerly grasped, and lazarettoes were organized in all the Mediterranean ports. At the beginning of the seventeenth century the spirit of isolation was carried to an extreme that intensified the scourge. The inhabitants of infected districts were compelled to remain there, and were surrounded by troops to prevent ingress and egress, except under definite regulations. In the eighteenth century lazarettoes were in general use, and the effect was observed in the decline of the disease from the interior portions of Europe, and its confinement to the maritime ports.

Vessels trading with Egypt or the Levant were under explicit directions, not alone with reference to the passengers, but also to the cargo and vessel itself. At this time Marseilles received especial prominence, and its lazaretto became the most celebrated in Europe, because of its management and care. During the latter part of the century the excessive precautions taken, with reference to passengers and merchandise, almost entirely obscured the rights and privileges of those suspected. Where there was the least trace of fomites in the vessel or cargo, the unfortunate passengers were compelled to undergo an almost unlimited period of isolation.

The great philanthropist, John Howard, did much to regulate these abuses. He successively visited the hospitals and lazarettoes of the Mediterranean, where the plague prevailed; energetically attacked the defective appointments, and laid the foundation of the present legislation on the subject.

It was not until the commencement of this century that other diseases than the plague occupied the attention of quarantine officials. Then yellow fever, smallpox and cholera received the consideration that had heretofore only been extended to the more mysterious and startling epidemic. In 1821 the terrible scourge of yellow fever appeared in Barcelona. It reached the quarantine of Marseilles and was excluded from the city. But while the approach of yellow fever was to be dreaded from the sea, Europe was threatened with cholera from the land.

In order to arrest its progress on the Russian frontier quarantines were established. These efforts were useless, as the rapid march of the cholera epidemic through Europe in 1831 proved; and these land quarantines, which consisted of a sanitary guard on the frontier of such country, were abandoned. In 1850 a convention of medical men, representatives from all the principal powers in Europe, assembled at Paris. Here they agreed upon a code of in-

ternational sanitary regulations, which forms the basis of all subsequent quarantine legislation. Another convention was held at Constantinople, in 1865, when the full value of restrictive measures was recognized. After an examination of the history of quarantine measures in the United States, in Watson's Annals I find that the earliest reference to a system of regulations for the government of sickly vessels was framed at a general assembly begun at Newcastle, England, on the 4th day of October, in the twelfth year of the reign of King William the Third, 1700 A. D., by Wm. Penn, Esq., Absolute Proprietary and Governor-in-Chief of the Province of Pennsylvania. This act is entitled, "an act to prevent sickly vessels coming in to this government, and forbids unhealthy or sickly vessels coming nearer than one mile, to any of the towns or ports of the province or territory without bills of health; or landing passengers or goods until they shall obtain a license for their landing in Philadelphia from the Governor and Council." The penalty for non-observance of this act was one hundred pounds. The first instance of detention of a vessel in that State was in 1728, when two sickly vessels arrived in the Delaware from Bristol, England. One was in good condition and was allowed to enter; but the other had a case of malignant fever on board. In 1743 the Colonial Assembly passed an act providing for a lazaretto or hospital for sick persons arriving in the province.

Between the years 1700 and 1765 several changes were made in the original quarantine act by supplements. The penalties for infringment of the quarantine laws were very severe, one provision being that any sick person escaping from Province Island, the quarantine ground, and being arrested, was required to pay a sum of fifty pounds; and if not able, was to receive any number of lashes, not exceeding twenty, on his bare back, well laid on. In Massachusetts, quarantine legislation dates back to the beginning of the last century. According to the report of the Sanitary Committee of Massachusetts, in

1701 a partial law was enacted, having particular reference to small-pox, but including other diseases, according to the following provisions: In the event of vessels arriving in the province being visited with the plague, smallpox, pestilential or malignant fever, and other contagious diseases, during the voyage, or of their coming from any place where such sickness prevailed, the infection whereof may be communicated to others, the select men "were empowered to prevent all persons belonging to the ship from coming on shore, or those on shore having any communication with the ship." This has been the foundation of all the sanitary laws passed since that time. At a subsequent period, not exactly known, says Shattuck, a hospital was erected on Spectacle Island, near the town of Boston. In 1853 all vessels arriving from ports where yellow fever was prevailing, or having cases of the disease on board, were ordered into quarantine, where they were examined; and if found to have any decomposing or fermenting substances or collection of filth in the cargo, or among the ballast, they were discharged of their cargoes, cleansed thoroughly, and sanitary measures were continued until a decided improvement occurred. All isolative quarantine was avoided. Passengers, and as many of the crew as could be spared, were allowed to land and enter the city with their personal baggage and effects. Permits were to be obtained from the port physicians.

So much for the early history of quarantine in Philadelphia and Boston. In New York, in 1755, the Colonial Legislature took up the subject and enacted a law entitled "an act to prevent the bringing in and spreading of infectious diseases in the colony." From the report of select committee of the New York Assembly, 1848, it is shown that the provisions were that vessels having smallpox, yellow fever, or other contagious diseases on board, should not come nearer the city than Bedlows Island, then to be quarantined; and heavy penalties were imposed for a

violation of this law. This act, in the language of Judge Birdseye, of the Supreme Court of New York, in 1856, contains the germ of our present quarantine system; and the provision, in Section 3, for the appointment of a physician to inspect all vessels having on board, or which may be suspected of having on board, any person or persons infected with a contagious distemper, is probably the earliest provision of law in the State, for the selection of a person to perform the duties of the present Health Officer of the Port of New York. At the third National Quarantine and Sanitary Convention, held in the city of New York, in April, 1859, the Committee on Quarantine presented the following report upon the reforms required to make quarantine more efficient and less burdensome.

In the establishment of a quarantine two objects are to be kept constantly in view, namely:

First—That it shall be fully adequate to prevent the introduction of disease from without; and, secondly, that it shall not interfere with the interest of commerce or the freedom of intercourse any further than is absolutely necessary to insure its efficiency in keeping out disease. The committee recommends the separation of vessels detained for examination, ventilation or purification from each other; and their removal at a sufficient distance from any thickly inhabited or much frequented locality; for the removal from on board of them of all passengers, and as many of the crew as can be spared without endangering the safety of the vessel, and with a due regard to her prompt and effectual purification; those removed from on board being placed in such a situation on shore as shall not endanger their health, or, if already sick, as shall best secure their speedy recovery.

In regard to time, as an element of quarantine, I find among authority in support of its inutility, Dr. Alfred W. Perry, formally connected with the New Orleans Board of Health and at present a member of the San

Francisco Board of Health. He says in *New Orleans Medical and Surgical Journal*, 1874: "I think that time, as an element of quarantine is the least to be depended on, the most oppressive to commerce, the most costly, and at the same time the least effective." The geographical position of San Francisco, as a key of the Western shore of this continent, its large commerce with the Orient, the tide of Chinese immigration which flowed unchecked to the westward, and even now is only partially abated, all combine to place this city in a position full of danger, as in its turn, it could become the great distributing point for those forms of contagious diseases so prevalent in the Orient. As the Hawaiian Islands have been within the past fifteen years largely populated by the Chinese, a still further danger of the advent of infected persons was to be apprehended, from steamers and vessels coming here regularly from these islands.

At a meeting of the Hon. Board of Health of this city, held during the spring of 1879, it was made compulsory that immigrants should be vaccinated before receiving permission to land.

Nearly two hundred thousand immigrants have been vaccinated since that resolution went into effect. Since 1883 but three sporadic cases of smallpox have occurred, and these on three different steamers, and though on each steamer there were over one thousand persons, no other cases were developed, because vaccination had left no material for the disease to work upon.

There does not exist in the United States a sea port where these precautionary measures are so necessary as in San Francisco.

The population of San Francisco is the most cosmopolitan, in proportion to its numbers, of any city in the United States. It contains a special element prone to epidemic diseases, the Chinese and the Latin races.

But the great control that vaccination has given us over small-pox has largely tended to lessen the terrors of that disease.

The mean temperature being so low, under 60 deg. F., precludes the possibility of yellow fever ever getting a foothold here. But it could be introduced in the interior, where a high temperature prevails, and where the low lying miasmatic lands bordering upon some of our rivers, are particularly favorable towards fostering this disease.

The epidemic to be most dreaded in this region is cholera, that form of cholera which travels from India to the westward, and which has taken at the present time a strong foothold in South America. The first instance of cholera in the United States occurred in 1832. It was brought to Canada in the steamer "Voyageur;" and thence to the State of New York, spreading from town to town until it reached New Orleans. And so in every case, cholera has been distributed through the medium of infected ships.

The question now arises, what are the best disinfectants and the best methods of their application. Among the principal germicides are chlorine, bromine, carbolic acid, sulphur and mercuric chloride.

My experience, as a quarantine officer, extending over eight years, teaches me to rely on the fumes of sulphur and chlorine, as being the best for fumigating infected vessels; while soiled clothing and bedding should be immersed in a solution of mercuric chloride, of the strength of 1 to 1000. These are the least expensive, and in my opinion, the most effective.

In regard to the application of the fumes of sulphur, I find in the New Orleans *Journal* of January, 1875, a special report of Dr. A. W. Perry, of quarantine operations on the Mississippi River, from which I quote:

"The disease germs may occupy any part of the vessel; and, to be effective, the disenfectant should reach every part of the vessel. This can only be accomplished in a cheap, quick and thorough manner by the use of gaseous or volatile disinfectants, applied by a special apparatus which I will describe. The apparatus consists

of one or more force blowing machines put in motion by steam power, which are connected with a furnace for generating sulphurous acid. Soon after being assigned to quarantine duty, the apparatus was prepared to carry out my ideas in regard to the disinfection of vessels. It was brought into working order June 30th, 1874. It consists of a sheet iron cylinder 3 feet in diameter, 3 feet high, with numerous adjustable holes at the base. Into this was put a charge of from 30 to 100 pounds of sulphur, which was lighted by a few burning shavings. An 8-inch iron pipe connected the upper part of this sulphur machine with the entrance opening of a No. 2 Sturtevant fan blower. To the outlet was connected a short, upright piece of iron (8 inches), and to this fastened an 8-inch rubber hose. The fan of the blower was put in motion by three pulleys, of increasing speed, and made 2500 revolutions per minute. The main driving pulley was turned with a crank, by two men. The whole apparatus was mounted on a small flat boat, which was towed to the vessel lying at anchor, near the quarantine station, and the blower started until the shavings had burned out. One end of the rubber pipe was then connected with the blower, and the other end was introduced into the vessel."

Everything considered, we have good reason to congratulate ourselves, despite our exposures, upon the healthy condition of this port.

As the science of life consists in the diminution of risk, the exercise of constant and intelligent vigilance will alone form our safe-guard against epidemics.

SYMPATHETIC AND PSYCHOLOGICAL EFFECTS OF DISEASES

AND

DISPLACEMENTS OF THE UTERUS AND ITS APPENDAGES.

By IRA E. OATMAN, M. D., Sacramento

TREATMENT.

A theme so broad and so deep as the above is ample for a book of no small proportions. Yet the entirety and force of the subject would be marred and broken by division—which would also impair and weaken the scientific and logical deductions, which form the objective point of this paper. The uterus, the matrix or mother of us all, with its sympathetic sisters, the ovaries, is the focal center of a range of sympathies with other organs, not equalled in extent or importance by those of any other organ of the human body. Painful psychological and functional symptoms are manifested through other organs, which, unchecked, result in physical disease of those organs, nervous exhaustion and in mental aberration, foreshadowing the gravest results. The acceptable limits of this paper forbid more than a brief allusion to some of these consecutive affections.

HYSTERIA.

I give a case, with results. I was called to see a short sanguine woman, replete in her habit, with florid complexion. She had very severe and frequent hysterical convulsions. She took a teaspoonful of tincture of veratrum viride by mistake instead of ammoniated tinct. of valerian intended. In a few minutes her face became pale and cool, and her pulse was reduced to 40 beats per minute. In about ten minutes or less she vomited violently and almost constantly. I prepared a diffusible stimulant as a speedy antidote. But she refused to take any of it—saying, she "thought the medicine did not agree with her."

The pulse gradually increased however, and the vomiting decreased in frequency. In about twelve hours she nearly recovered from the effects of the medicine. She had no other convulsion after taking the veratrum, and her recovery was rapid. Not being her regular medical attendant I had no opportunity to examine or treat her womb. As soon as conveniently possible all female cases of hysteria should be examined for diseases and displacements of the uterus, or early pregnancy. In almost all cases cervical hyperæmia, epithelial abrasion, ulceration or displacement of the uterus will be found to exist. The treatment of these will rcceive attention further on.

In cases attended with *convulsions*, where the patient is plethoric with hot, dry skin and strong rapid pulse, *veratrum viride gives speedy relief* when given to or approaching nausea or vomiting. Its relief is about as speedy as that from venesection, and is really more efficient in controlling the sanguiferous and nervous tension, and with these the convulsions. Its excessive action is under absolute control by the use of stimulants. There is no loss of blood, nor permanent loss of physical strength. The tincture of veratrum viride may be given in urgent cases, in doses of five or six drops every thirty minutes, or oftener, for two or three doses or more,

if necessary to produce a degree of general relaxation adequate to the arrest of the convulsions; with a judicious use of anodynes, and enough of the veratrum given once in an hour or two to keep the pulse down to 45 to 60 per minute, and to maintain sufficient relaxation to prevent further convulsions, and to carry the case along, so to speak, until the bowels can be freely moved, if necessary. Then quinia, ext. hyoscyamus and pulverized camphor given four times daily in liberal doses in pill form will usually secure a speedy mitigation, or removal of all the symptoms. Ether or chloroform by inhalation may be given in urgent cases with temporary relief. As soon as the nervous system is sufficiently quiet, and the strength and endurance of the patient will admit, the organs of the pelvis should be thoroughly examined—both digitally with external palpation, and with a speculum. Especial attention should be given to intra-pelvic inflammation, abscess, hematoma, ovaritis, tumors; and to enlargement of the uterus from pregnancy, sub-involution, hyperemia, and other causes, and especially to congestion of the os and cervix uteri with or without abrasion of the epithelium—ulceration of the os—endometritis of the body and neck, also for polypi, vaginitis and vaginismus. Some of the above pathological conditions may be expected and are found in most cases.

Their appropriate treatment should be commenced without delay. The convulsions and other urgent symptoms usually disappear rapidly under judicious treatment, or become greatly modified. Complete relief from all the symptoms generally precedes the entire removal, or cure, of the lesions on which they depend.

Cases of periodical neuralgia of the face and other parts of the body, the pain intensely severe, which could be palliated, but could not be cured by anti-malarial or other neuralgic treatment, I have repeatedly proved to be of sympathetic or reflex nervous origin, by

finding them yield readily to appropriate treatment directed to the lesion or displacement of the uterus, or its appendages.

Dysmenorrhœa of great severity, coming before the flow begins, is generally caused by *ovaritis*. During its continuance, worse early in the period, it may be caused by occlusion of the external or of the internal os, or both these, which may be congenital, or caused by endo-cervicitis, chronic inflammation of the cervix—with abrasion or ulceration of, and around, the os uteri. Or it may be caused by rheumatism of the uterus and appendages—by active or passive congestion from exposure to cold and dampness, and by flexions obstructing the flow, etc. Dysmenorrhœa from all these and other causes is not only attended by uterine and peri-uterine pain, but by sympathetic or reflex pains and functional disorders, which may be in the hypogastrium—sacral and lumbar regions of the back and down the thighs—or it may be in the form of gastralgia, pleurodynia, cephalalgia, etc., in damp or malarial districts. Or, there may be nausea, anorexia, or other functional disorders, all having their focal origin in a displaced or diseased womb, or in its appendages. If we could exclude all sympathetic affections from the uterus we would reduce the horror of dysmenorrhœa. I had a case, mother of two children, years ago, of tonic spasm, with occasional tetanic rigidity of all the muscles of the body—far worse at the menstrual periods. No relief was possible to the tonic spasm all over her, until the sub-involuted uterus—with antero-posterior displacement, the fundus forward—was digitally adjusted, when complete relaxation and relief were instantaneous. Yet its oft occurrence could not be prevented until the diseased condition of the uterus was cured. The os and cervix were extensively ulcerated and inflamed, and there was rigid ante-flexion. After all disease and tenderness of the uterus were relieved, and nothing remained for treatment but the ante-flexion, a suitable pessary of my

own design was worn with comfort, and the patient, bed-ridden the most of the time for a year, but with sufficient general health and strength, arose from her bed and soon did her housework as usual. She bore two children afterward.

I was called at 1 or 2 A. M. to see Mrs. —— ——, of active temperament and the mother of four or five children. I found her in labor of abortion—the os uteri dilatable and the anterior lip excessively tender to the touch. In a short time the two or three months' embrio was delivered, and there was considerable hemorrhage, which was duly arrested. Her general health remained somewhat impaired, from which she was slowly recovering, when she began to manifest unmistakable evidence of quiet, reticent, melancholic insanity, with decided suicidal tendency. She made repeated efforts to secure her husband's pocket-knife, and the table-fork, brought to her bed with her food, obviously for suicidal purposes. And once, when alone a short time, she was found standing on a chair, with a rope around her neck, and thrown over the door, just ready to be suspended, when discovered.

I told her kind husband that she had melancholic insanity of strong suicidal tendency, and that she had disease of the womb as the predisposing cause, and that the puerperal condition was the exciting cause. Also that her recovery was doubtful, without appropriate treatment to the womb, and that unless speedily relieved he would have to send her to an asylum for her own safety. After some delay and with great reluctance, she consented to an examination, which disclosed the usual sub-involution of the uterus after abortion, with cervical inflammation, and extensive ulceration and extreme tenderness of the os uteri.

Under the treatment the diseased condition of the womb improved, and her mental condition improved in about the same proportion until she appeared to be

free from any mental alienation, though the disease of the womb was not wholly removed. She had accepted the treatment under protest. But at that time feeling well, she utterly refused further treatment. I have not seen her for a few years, but her husband says she has fully recovered in all respects, and has had no other treatment for her uterine disease since I treated her. In this case, the disease of the womb by sympathy, as well as from direct pain, kept the woman miserable; and through reflex action on the brain, changed its psychological action, or its mental developments, which resulted in insanity, which was increasing upon her until the treatment removed the disease of the uterus, on which the sympathetic and the grave psychological affections depended.

The practical importance of this case is, that a good wife and fond mother is saved from the asylum for the insane, to her family.

I will allude to one more illustrative case, which was of intense interest to me.

Mrs. —— ——, aged 32, sanguine, nervous temperament; had given birth to one child a few years before I was called, on Jan. 18, 1884. Her maternal and her most profound sympathies had been long and intensely exercised for her invalid child, whose death she had been deeply mourning for about 18 months when I was called to treat her. I found her anemic, with general health impaired. She was suffering from constant headache and from mental and nervous prostration. She had extreme ante-flexion of the uterus, chronic cervicitis, with hypertrophy and ulceration of the os uteri. Under the treatment her general health improved, but the disease of the womb was not wholly removed when she returned home, a long distance in the country. After 11 months she returned to this city, and remained under treatment for over 5 months, with such improvement that she went home again, though some degree of endo-cervicitis still remained, which doubtless aided the intolerance of any

pessary I had or could obtain in this city or in San Francisco, for the relief of the anteflexion. She returned home again, but continued under tonic and anodyne treatment for four months, when I was called to see her at home. In consultation with an eminent physician, I found that she had been suffering great discomfort from sympathetic reflex, functional disorders, with continued cephalalgia and nervous prostration; that she had short periods of unconsciousness, lasting a minute or two, occurring 4 to 6 times every 24 hours, apparently threatenings of convulsions, as they were attended with slight tremors; and that she had had one severe epileptiform convulsion. The reflex influence upon her brain had produced a decided psychological change. Her powers of memory were almost wholly lost, especially of the most recent events of the day or hour. While I staid with her she had a long and very severe epileptiform convulsion, but did not manifest the usual evidences of hysteria. I examined the uterus and its appendages, and found but little disease of the os and cervix uteri; but the anteflexion, the chief cause of her convulsions and of her psychological condition, still remained. I introduced an imperfect anteversion pessary of Dr. Cole's design, the best and only one I could obtain of that kind. We increased the tonic treatment, the bromides and anodynes at the same time. She showed improvement the first day, and has never had a convulsion since, although she has had many of the brief periods of unconsciousness. The pessary became more imperfect and produced such irritation that it had to be removed. With gutta percha fused by heat, I formulated a pessary of my own design, which gave immediate relief to the anteflexion, and was worn for many months with increasing relief, and also to the nervous prostration, the loss of consciousness, and also to the loss of memory. She is still under medical treatment, which wholly controls the convulsions. The unconsciousness is less frequent and of

shorter duration. The memory is greatly improved and is improving, and is almost perfectly restored. When the medicine is omitted for a short time, the short intervals of unconsciousness become more frequent. The pessary has been omitted for 5 or 6 months at one time. The pessary was not used until the ulceration, inflammation and tenderness were so removed from the uterus, its os and cervix and its appendages, that it was worn with comfort. It was the most important factor in correcting the anteflexion of the uterus, and in relieving the sympathetic and psychological influences therefrom which had kept her so miserable and ill at ease, and which threatened the gravest results in the future. For, without a correct knowledge of this case, no medical or hygienic treatment could have prevented its continuance, the results of which, judging from the progress already made, would soon have been both physically and mentally ruinous to the suffering patient.

The acceptable limits of this paper forbid a consideration of the various other sympathetic and psychological results of disease of the uterus and its appendages, or of its displacements. I submit, however, enough of these to illustrate the importance of the physiological, pathological, sympathetic and psychological results of disease of the uterus and its appendages, and of the principles involved in the entire theme. It remains to consider the more important treatment—reserved until now to avoid repetition. The focal center whence emanate all these sympathetic and psychological influences is confined to the uterus and its appendages, with occasional vesical pressure. To avoid prolixity, much of the detail in treatment will be omitted—the suggestive indications for which being sufficient to guide the members of this society therein. Nor will I treat of all the pathological conditions involved, either focal or sympathetic. I propose to examine briefly, first, the diseased conditions of the uterus and its appendages, and secondly,

its displacements, singly or involved together, in the production of the various sympathetic affections through reflex nervous action, the subject of which is the objective importance of this paper. Hypertrophy of the entire uterus, with or without cervicitis, epithelial abrasion or ulceration of the os, from sub-involution or from congestion from other causes, chronic inflammation, flexions, tumors, etc., should first be depleted of some of its blood—once in two to four days, according to indications—by leeches, or puncture which I greatly prefer, with Chapman's scarificator, with which from half an ounce to two ounces can be readily obtained, usually without pain. The bleeding usually ceases before the required amount is obtained, when the punctures may be slightly enlarged. Should the bleeding continue too long or be too profuse it may be usually arrested by pressure with a small piece of sponge on the end of a whalebone, or on any small, straight, tough substance, or absorbent cotton used with the speculum forceps—either of which may be saturated with a strong sol. of sub-sulphate or per chloride of iron, carbolic acid or argenti nit. When the os is ulcerated, with the usual cervicitis, the ulcerous surface should be touched freely once in three to five days with a solution of nitrate of silver, one drachm to the ounce of soft water. If there is only abrasion, the solution should be two scruples to the ounce. I keep always ready a lotion with which a pad of absorbent cotton is saturated, to which is well secured a soft, small twine or coarse cotton or silk thread three or four inches long to facilitate its removal. I also keep "Mitchell's soluble, medicated uterine pencils." A small lock of prepared cotton wound around the end of a small, straight whalebone or slender splinter of tough wood—the cotton projecting beyond the point of the bone or stick—is better than a camel's hair brush with which to apply the solution of silver nitrate. After it is thoroughly applied, and the os sponged with soft water, I next introduce a piece of Mitchell's pencil about one

inch long into the cervical cavity. This I immediately follow by the absorbent saturated cotton, which is allowed to remain twenty-four hours. The cotton keeps the pencil in situ and absorbs its solution, which is complete in an hour or two. After the cotton is removed vaginal injections should be used three times a day until the next treatment. The injection should be of sulphate of zinc, four grains to the ounce, or hydrarg. chlorid. cor. 1 to 1,000, to which is added chloride of zinc, two grains to the ounce of solution. It should be reduced if found too strong.

The formula of the above lotion is as follows, viz.:

R. Acid. Tannic.....scruples, ij.
Acid. Carbolic..... minims, vj.
Ext. Ergot. Fluid.
" Opii " .....ana, ounce, ss.
Spts. Lav. Comp.
Tinct. Iodine. " .....ana, drachms, ij.
Glycerin.....q. s. ad. ounces, iv.
M. ft. sol.

The formula of Mitchell's pencils is his No. 24, viz.:

R. Zinci Sulph.....gr. ij.
Acid. Carbolic.....gr. j.
Hydrastis Canad.....gr. v.

In each gelatine pencil three inches long, of which in ordinary cases, I use a piece an inch long. In endometritis and cervicitis, the pencil may reach into the body of the uterus. But in cases of endo-metritis, especially when there is menorrhagia, I prefer to dilate the cervix, and use a swab of absorbent cotton saturated with carbolic acid. Since using Mitchell's pencils I have noticed more rapid improvement in my cases. The *lotion* constringes and soothes the ulcerated or abraded surfaces, and aids materially in reducing the hyperæmia and inflammation of the parts, thereby promoting restor-

ation to their normal condition. The use of argent. nit. has been opposed and rejected by eminent authorities, upon the alleged grounds that, the cicatrization therefrom is so indurated as to interfere with the normal functions of the organ. Induration is a legitimate result of cicatrization, whether the healing is aided by the silver nitrate or other substance, or is wholly unaided. I have not been able to connect induration of the os uteri in the parturient woman, with cicatrization thereof, by the use of the nitrate. In some cases I had previously used that substance in its pure state, and yet the os was not unusually indurated or resisting. The constringing and sedative action of the nitrate is a potent agent in healing ulceration or abrasion of the os or cervix uteri, and in relieving the hypertrophy and increased weight of the inflamed cervix, and apparently of the entire uterus, by diminishing the hyperemia, and, perhaps, promoting the absorption of effused lymph. This action is an important factor in the cure of those pathological conditions, the most potent in producing, by reflex nervous action the sympathetic and psychological effects under consideration. The glycerine has the reputation of depleting the blood of its fluid parts in the capillaries.

The action of the ergot is to diminish the caliber of the arterioles, the capillaries and the venules, and thereby lessen the aggregate hyperemia, weight and hypertrophy of the diseased parts, and exert a curative influence in that proportion. I will not detain you with a detail of vaginal injections with warm or hot water, or of the treatment of ovaritis, or of many other useful means of cure, for want of time.

The above is, in brief, my favorite treatment for the class of cases described. A few words on displacements of the uterus.

It is a cardinal principle in treating all displacements, that mechanical support can never be used with safety, comfort and success, while ulceration or epithelial abra-

sion exists, or when there is hypertrophy, hyperemia, inflammation, or any condition in which a pessary would produce irritation and pain, or leucorrhœa. In all such cases the pathological condition must be removed by appropriate treatment before an attempt is made to adjust a displaced uterus. Where displacements are caused by the pathological conditions herein considered, the removal of all such disease will frequently relieve the displacement to a satisfactory extent. Should the cause be a tumor—extra uterine, intra-mural, or pelvic, its removal will generally relieve the displacement. If its removal is impracticable, mechanical support is generally inadmissible, save in some instances by some very elastic substance—as cotton or sponge—which are of little benefit. In cases of retroversion and retroflexion, and where all disease is removed, a size and shape of Hodge's double bar pessary can be selected, that will give relief without pain or irritation, which may be worn from three months to three years, if necessary, with impunity and complete success. In all cases where pessaries are used, should inflammation or much irritation be produced, the instrument should be removed and vaginal injections should be used. The zinci sulph. usually answers well, and should be used three times a day until entirely relieved, when a better fitting pessary should be selected, if possible, or the old one resumed, if necessary.

In cases of anteversion, and especially anteflexion, and where all disease is removed, a pessary that will satisfactorily adjust the anteversion, or straighten the deformity of anteflexion, has been, and is still, to some extent, with all gynecologists, a *desideratum.*

Of the numerous and ingenious pessaries for anteflexion, I had preferred that one of Dr. R. B. Cole's design. I was unable to obtain his instrument. With precisely what I needed in mind, with fused gutta percha, and a dish of cold water at my side, I formulated this pessary, which I show you, with my hands, while the material was

cooling. In anteflexion it acts like a charm. It gives perfect satisfaction. The indications are to securely maintain the os and cervix in their normal position, and to prevent them from passing backwards and rising upwards, and at the same time to lift the fundus and hold it backward—away from undue proximity to the bladder—a fruitful source of cystitis and reflex action. This pessary meets every indication. It holds the uterus securely in its normal position, whilst it does not interfere with menstruation, or materially, with marital relation. The small size of the fenestrum and the large size of the posterior cross-bar, retain the cervix in its normal position and prevent its backward and upward movements, while the expanded, thin, anterior portion lifts the fundus upward and carries it backward to, or beyond, its normal position, and at the same time straightens the anteflexion, and by an unremitting support, it keeps the crevix straight and maintains the normal shape and position of the entire organ.

I claim, also, that it overcomes another contingency not heretofore met to the same extent, a great desideratum, viz: that when in the upright position the intestines rest upon the fundus in the normal position; but when dis-

placed, as in anteflexon of the uterus—being long on the feet or lifting or straining, the displacement is increased by the extra force brought to bear on the fundus and the posterior aspect of the uterus. With this instrument in situ the extreme convexity of its anterior and lower surfaces is such that pressure from above on the fundus, acting through the uterus longitudinally upon the posterior and lateral posterior portions of the pessary, and upon the posterior cross-bar, forces the pessary to glide easily endwise in the vagina—describing a segment of a circle, equal in its greatest diameter to the diameter of the greater curve of the instrument. This circular, endwise movement of the instrument carries with it the cervix forward, away from its abnormal position backward. The cervix in the fenestrum cannot escape. The effect of this forward and upward motion of the pessary from pressure above is to force the fundus upward and backward by the expanded and thin portion of the instrument to and even beyond its normal position. Increase of pressure from above on the fundus uteri increases the adjusting power of the instrument in proportion to the amount of pressure or force applied. This instrument, then, adjusts the anteflexion or anteversion of the uterus, and so supports the organ in its normal position that all ordinary causes of displacement, or which tend to increase it, exert precisely the opposite effect.

Indeed, pressure on the fundus uteri from above, from any cause, with this instrument in situ not only prevents the displacement of anteflexion and anteversion, but aids very materially in correcting those displacements. This instrument then adjusts antervesion and anteflexion of the uterus, and supports it in position easily and without discomfort to the patient until by habit of adjustment it retains its normal position after the pressure is removed.

With the view of being practical this paper comes fresh from my own experience and observations in actual practice, not having consulted any author during its preparation.

A letter just received from the mother of the last case described, "far in the country," says her daughter is feeling pretty well. * * Is taking no medicine but the "bromide mixture." * * Is cheerful and enjoys society." She does not need the pessary. Her memory is restored to its normal condition, or nearly so.

J. H. A. Folkers & Bro. wrote to me some weeks ago that they had sent the model of this pessary East, and expected the instrument will be manufactured in "hard rubber," in which event they will keep it on sale at their store at 118 Montgomery Street, San Francisco.

SHORT HISTORY

OF THE

ACTUAL CAUTERY IN THE DISEASES OF THE EYE.

By N. J. MARTINACHE, M. D., San Francisco.

Ladies and gentlemen: In his report on ophthalmology last year to this society, Dr. W. F. Southard made mention of the use of the actual cautery in certain diseases of the eye, or rather of the cornea, as it is in the ulcus cornea serpens and suppurative keratitis, in which the cautery has been found most useful. Dr. Martinache, says the report in 1873, first proposed the use of the actual cautery, an operative procedure which is now rapidly coming into favor. He did not follow up this most brilliant and original idea, and it has since lain semi-dormant until the past year, when Dr. Gruening of New York and Dr. Niedan of Bochun, Prussia, made a somewhat extensive trial with it, and reported the results: Dr. Gruening ten cases, Dr. Niedan two hundred cases, not an eye lost. On reading this I immediately informed Dr. Southard that I had not proposed, but introduced the actual cautery in ophthalmic practice; that I had published an extensive article in the *Annales d'Oculistique*, and that his report needed rectification. Dr. Southard showed his good intention by a prompt answer, stating that he would

publicly correct any error made which would in any way detract from the honor due me for my inestimable service in introducing the actual cautery in ocular therapeutics. But to my knowledge Dr. Southard has since then remained as silent as a tomb, and in justice to all concerned I have to rectify the above report and try to show the right side of the question, by a brief resume.

In 1872 I used the actual cautery for the first time. A capillary fistula of the lower lid had resisted everything. I touched it once with a capillary probe heated by the lamp, and in less than twenty-four hours it was healed. A case of chronic granulations was then successfully treated, the patient believing that a warm application was made to his lids.

In 1873 I presented to San Francisco Medical Society two patients cured from ulcers of the cornea with a marvelous rapidity. One case is reported in a pamphlet, the reading of which may prove interesting.

Distance lends enchantment to the view, and proximity breeds contempt, so an oculist here termed the process barbarous, and another one gave it the honors of ridicule in the *Chronicle.* In spite of these benevolent comments I went on, encouraged by every case treated, and in 1878 out of forty cases, which were so many successes, I published twelve ulcers that had dragged for months or years, and were cured in one or a few applications. It was a revolution in the treatment of chronic ulcers, and I specially insisted on the efficacy and innoxiousness of the method, so as to determine other physicians to use it, and develop it. I expressed the conviction that the actual cautery would have an important place in ocular therapeutics, and my expectations have not been deceived.

The right of priority is not disputed by anybody, and even Dr. Gayet of Lyon, France, who had used the cautery without knowing my first publications, acknowledged that I had preceded him in this new and useful method

of treatment. After Gayet, in 1877, Martin of Bordeaux, in 1881, published an article on the use of the galvano-cautery in pterygium. Then Abadie, of Paris, used it in suppuration of the flap after cataract operations.

It was tried in 1881–82 by Martin, Abadie, Wecker for detachment of the retina, but without success. Wecker in his article says: Our colleagues Martinache, Gayet and Martin have caused the actual cautery to take a decided foothold for certain forms of ulcers of the cornea. Any one that has used it when indicated, will acknowledge its rapidity of action. Knapp has lately given his contributions very approvingly.

Ever since 1872 I have used the actual cautery when indicated, and I never had to regret it. Had the method been introduced by a high authority, its progress would have been more rapid, but the results not better. When will things be judged on their own merits, that is the question. Suffice it to say that medical education has not yet reached that degree of perfection.

In regard to the action of the cautery, the expression then indicated, has been used twice. It is well known that in disease the fulfillment of the principal indication is followed by immediate improvement; it is striking the nail on the head. How is it then that in the treatment of the serpiginous ulcer of the cornea, the opinions are divided between the actual cautery and the knife, or what is called Sæmisch's operation, so that for some the actual cautery is preferable, for others the knife. My opinion is that the cautery is indicated and superior in superficial ulcers, and the knife in deep-seated ones. I have seen cases where the cautery failed completely when cutting was followed by a rapid recovery, and the comparison made with abscesses in dense tissues, to show the superiority of the knife, is not sufficient; the depth of the ulcer involves nutrition and repair of the affected structures, and consequently it has intimate relation with the mode of treatment. In a superficial ulcer, leaving

intact say two-thirds of the cornea, the nutrition is little disturbed; and the process of repair is immediate after elimination of the cauterized cornea. In a deep ulcer, comprising two-thirds or more of the thickness of the cornea, the nutrition is so impaired by the relatively increased ocular tension, that repairing is impossible before complete division of the diseased parts; and such an ulcer left to itself or treated by different applications, will lead by the natural medication to a perforation, a very slow process indeed; but if the knife helps nature in the division, then tissue rebuilding or repair begins at once, as the serpiginous ulcer is depending on the presence of germs. According to some physicians the success in such cases will naturally lead to the rather unexpected conclusion, that the knife is a powerful germicide, or to the question: is the germ theory more in the mind's eye than in things?

ELEVENTH ANNUAL REPORT OF THE BOARD OF EXAMINERS.

By R. H. PLUMMER, M. D., Secretary.

Number of meetings held during the year	17
Number of original certificates granted	208
Number of duplicate certificates granted	3
Total number granted during the year	211
Number of certificates refused because of unprofessional conduct	2
Number refused because of insufficient credentials	4
Of the whole number who received certificates, some of whom had diplomas from two or more schools, there were graduates of California schools	27
Of other American schools	168
Of foreign schools	25

One of the above licentiates had fallen under a cloud of adversity, suffering the loss of a limb; and while he was thus prostrated upon a bed of disease, unable to meet the expense of a certificate, the Board granted one to him without pecuniary consideration.

The chief report which we have to make we desire to present in the form of the 3rd edition of the *Medical Register*. Therein will be found the report of much of the work of the Board during the year.

W. H. Sommers, of Moore's station, an applicant for a certificate from this Board, presented a long affidavit, reciting that he had attended two full courses of lectures at the medical department of Lind University (now the Chicago Medical College) in 1861-2 and 62-3, and after passing a satisfactory examination received a diploma from that institution; and that shortly thereafter his office was burglarized and the diploma stolen. The records of the institution having been destroyed in the memorable fire of 1871, he was unable to prove the fact of graduation.

This Board looked up the catalogue of alumni, and not finding his name therein, placed itself in communication with the dean of the faculty, through whom we learned that the record book had not been destroyed, and that it shows that W. H. Sommers had attended only one course of lectures at that institution, and did not graduate there. On being apprised of this information he wrote a letter to the Board, admitting the falsity of his affidavit, excusing himself upon the plea that he had left the school to take a position in the U. S. Army, where the field of practical experience was much greater. He thought the Board ought to overlook any little discrepancy that might appear in the affidavit.

He paid the penalty of $20, which the Board is authorized to collect in such cases; which does not, however, shield him from prosecution on the charge of perjury.

Referring to the subject of prosecutions for violation of the Medical Practice Act, we have been informed that the Los Angeles County Medical Society has appointed a committee, which has collected the sum of $500 for this work. It has secured the necessary evidence against fourteen parties, two of whom have already been arrested, and are now awaiting trial.

The committee appointed by the San Francisco County Medical Society to conduct prosecutions in this city still has charge of that work.

Concerning the arrest of J. H. Josselyn, Li Po Tai, and P. R. McNulty, we would offer the following explanations: The charges against the former two were dismissed by the Police Judge, because of defective complaint, with the request that a corrected complaint be filed. Before a new complaint was drawn the prosecuting witness left the city. About this time Josselyn was arrested on a charge of criminal malpractice, and only recently stood trial on that charge. For this and other reasons these cases remain *in statu quo.* Referring to the case of McNulty, the explanation of the long time intervening between his arrest and trial may be found: First—In the desire of all these cases to gain time by postponement. Second—In the excitement incident to the election—nearly all the officers of the Court being candidates for re-election or promotion. Great preparation was made for a vigorous defense, but when the jury had been impaneled, and the prosecution had presented their testimony, the defense submitted the case without the introduction of a witness. The Court instructed the jury, and it retired. After a time it returned, asking further instruction, as to whether the twenty-one signs of "Doctor," which plastered the exterior of the building, constituted "publicly professing to be a physician." The Court replied: "that is a matter of *fact* for the jury to decide."

The jury stood eight for conviction, and being unable to agree, was dismissed, whereupon it was published through the press that the defendant had been acquitted.

The above facts were brought to the attention of some of the authorities before the next venire was summoned. A jury was secured for the second trial only after the defense had exhausted its peremptory challenges.

The prosecution put in its evidence viz:

The testimony of a party for whom the individual had prescribed, and from whom he had received a fee, assuring him that he was suffering from albuminuria

and paralysis agitans—(no doubt he was greatly agitated at the diagnosis.)

The fact of twenty-one signs of "Doctor" on the outside of the building, and others on the inside, with the general appearances of a Doctor's office, were also established.

The prosecution closed its case.

The Court then entered into an animated discussion with the prosecution declaring it had not been proved that the defendent signed himself "M. D.," or that he "habitually prescribed for the sick," or "that he publicly professed to be a physician."

The prosecution cited decisions of the Supreme Court of Texas, affirming that once prescribing, taken with other facts, constitutes "habitually prescribing."

The Court replied, "It must be for the *sick*, and this witness testified he was *not* sick. The numerous signs about the building only proclaim him a 'Doctor'—he might be a horse doctor, or a dentist."

The prosecution protested that, according to his ruling on the previous trial, the subject of the signs was a "matter of *fact* for the jury to determine."

But the Court instructed the jury to acquit on the ground that the prosecution had failed to make out a *prima facie* case against the defendant.

This was in Police Court No. 1, presided over by F. A. Hornblower.

Failure should serve only as a stimulus to more vigorous and thorough work.

In the case of the People vs. O'Leary, for practicing medicine without a license in Woodland, the defendant was held by the Justice, and his trial is still pending before the Supreme Court of Yolo County. The defendant had the assurance to come to this city (after having been prohibited by the officers from delivering his lectures in the city of Napa) and demanded, in tones more vigorous than polite, that the Board of Examiners "call

off their dogs," that they use their influence to have the proceedings against him dismissed, boldly proclaiming, "you cannot afford to prosecute me." Foiled in his attempt thus to thwart the purposes of the law, he had the members of the Board subpœnaed to Woodland as witnesses in his behalf.

Through the efforts of Dr. Crumpton, of Saucelito, Frank Barnett has recently been arrested in San Rafael. He waived examination before the Justice, and was held for trial before the Superior Court of Marin County.

Through the *Medical Register* and medical press you have already been made familiar with the mandamus suit brought by Dr. E. N. Lowry, of this city, which terminated in favor of the Board; and with the two suits brought by Chalmer M. C. Prentiss, who calls himself in his advertisements, "Dr. Prentice." One of these was a mandamus suit for a license, with damages laid at $5,000, which terminated in favor of the Board, and the court costs were recovered from the plaintiff. The other was a suit in replevin to recover possession of the diploma, or $100,000, the alleged value thereof, with damages fixed at $5,000. Numerous unavailing efforts have been made to have this issue brought to trial.

While the Board has not accomplished all that is desired in behalf of legitimate medicine, it has accomplished much, and if it had more support from the profession, and more money to defray expenses, the result of its efforts would be greatly increased.

You are aware that the only revenue comes from applicants for certificates at five dollars each.

The Legislature has set aside the sum of $3,750 to defray the annual expenses of the State Board of Health, twenty-five hundred dollars of which is salary for the Secretary. The mission of that Board is "prophylactic, or preventive medicine," protecting the public by warding off disease.

The mission of the State Board of Examiners is "Prac-

tical Medicine," the protection of the public from incompetent and villainous practitioners, when their homes have been invaded by disease. The Board of Health holds quarterly meetings, while the Board of Examiners holds monthly meetings—sometimes two or three a month—interlarded with citations to appear before courts of justice to show cause, etc.; and the correspondence—like a ring—is without end.

Surely if the legislature will make provision to meet the expenses of the former Board, it should be equally ready to extend the same encouragement to the latter. If we had equal assistance in this direction, and if the profession would heartily co-operate instead of writing editorials against the law, and against its enforcement, there would not be a "corporal's guard" of illegals in the State in twelve months.

The work of the Board is steadily increasing. During the last year there have been 211 certificates issued.

During the fiscal year 1881–2, there were only 60 issued. At that time nearly fifty per cent. of those who engaged in the practice of medicine in this State did so without the sanction of law.

The first edition of the *Medical Register* caused a goodly number of those practising without a certificate to come into the fold. The announcement that the second edition was to be published, with its innovation of a "quack" list, brought in a hundred more. When it was finally published, with a list of 485 "illegals," it raised a commotion rarely created in the profession. This, followed by a few prosecutions, and in due time by the announcement that a third edition was to be published, resulted in a further depletion of that list, until, in this last edition, appear the names of only 164, most of whom call themselves magnetic healers, mind cures, massage operators, etc. From this list the names of H. C. Bagg, of Santa Monica, and F. D. Sponogle, of Santa Rosa, have been removed through the procure-

ment of the necessary license; and the latter is an applicant here to-day for membership in this society. He informs us that the *Medical Register* had not been in his county two weeks until it had done him that injury, which will require not alone the license of this Board and membership in this Society to *undo*, but *time* also.

In this connection it will be proper for us to revert to the fact that one of our members, who went astray in the by ways of the profession, and had his license revoked, was, through this book, and the strong arm of the law, brought back to the professional highway, and we rejoiced.

During the last year the Board, in the discharge of its duties, has declined to recognize diplomas from the Bethesda Medical Institute of Oregon, the Hygeo-Therapeutic School of New York, and the Kansas City Hospital College of Medicine of Missouri.

It will be remembered that the Society, at its last session, directed that new certificates of membership be procured, because of the fact that the supply was about exhausted. Because of errors in the old plate from which they were printed, it was directed that a new form be gotten up, and that they be issued to new members without charge, and to such old ones as desired to pay for them.

This duty was referred to the Board of Examiners. For good and sufficient reasons we have been somewhat tardy in the work, but we present them here to-day. 400 of them in parchment cost $210, or 52½ cents each; filling in by an expert penman, 25 cents each; ribbons, seals, etc., about 15 cents each, making the certificate cost when completed, about 90 cents. This we presume will be deemed "sufficient reason" for the delay, inasmuch as we are informed by the Secretary that they formerly cost the society $3.25 each.

We submit to you herewith the financial report of the board for the fiscal year.

Besides meeting the ordinary running expenses, we have been enabled to issue a most valuable (so many of the recipients designate it) Medical Directory for the State, a complimentary copy of which has been mailed, postage 7 cents, prepaid, to every regular practitioner in the State; to drug stores, public libraries and prosecuting attorneys; to many practitioners in Oregon, Washington, Nevada, and Arizona; to Boards of Health, Examining Boards and State Medical Societies; and to every regular medical college in the United States and Canada, that they may see to what standard they must keep up their educational work, if they hope to have their diplomas recognized by this Board. In addition to this, our "legal" expenses have been considerably increased by reason of the numerous suits instituted against us. The result of these suits we think worth all they have cost us. Notwithstanding these unusual drains upon our exchequer, we come to you with all bills liquidated and a balance in the treasury.

Eight years ago you invested us with the highest honor within the gift of the Society, instructing us to stand guard at the portals of the profession in this State, with drawn sword, to beat back the invading hosts of illegal practitioners.

We now return that trust to you, with the consciousness that we have not accomplished all that was desired; but we have "done what we could" with the resources at our command. If our efforts meet your approbation, we return it with a heart whose measure is replete with gratification; and we ask that you send out a "relief guard," and return us to the ranks.

FINANCIAL REPORT OF BOARD OF EXAMINERS.

FOR THE FISCAL YEAR ENDING APRIL 20, 1887.

BY R. H. PLUMMER, Treasurer.

ASSETS.

To cash on hand April 21st, 1886	$170	63
" " applicants for certificates	1168	25
" " Court fees recovered in Prentiss' case	29	00
" " advertisements in the *Medical Register*	997	70
" " sale of *Registers*	152	80
	$2518	38
Total disbursements	2497	02
Amount in treasury April 21, 1887	$21	36
To cash due for advertisements in *Medical Register*	50	00

Examined and found correct by the Auditing Committee.

GEO. W. DAVIS,
G. C. SIMMONS,
THOS. W. HUNTINGTON.

DISBURSEMENTS.

By Cash, postage and stationery	$ 210	47
" fees returned to applicants	41	00
" notary fees, messengers and telegrams	4	85
" Court fees in Prentiss case	29	00
" reporters' fees, in Prentiss case	30	00
" serving subpœnas	4	75
" lawyers' fees	250	00
By cash, canvassing city for names for *Medical Register*	27	50
By cash, postal index and expressage	16	85
" Espina filling in certificates	21	30
" Bancroft as per voucher	54	85
" Le Count Bros. as per voucher	3	75
" W. W. Sherman " "	40	10
" Crocker & Co. " "	910	10
By cash, traveling expenses of members of board to Woodland, (O'Leary case)	40	00
By cash, office rent and Secretary's services	250	00
" extra labor in getting out *Medical Register*	562	50
	$ 2,497	02

REPORT

OF THE

COMMITTEE ON GRADUATING EXERCISES

OF THE

COOPER MEDICAL COLLEGE AND THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF CALIFORNIA.

By A. B. STUART, M. D., Santa Rosa, Chairman.

Mr. President and Members of the Medical Society of the State of California:

Your committee on graduating exercises, consisting of the following members: A. B. Stuart, M. D.; G. W. Davis, M. D.; L. O. Rodgers, M. D.; F. Delmont, M. D.; C. A. Kirkpatrick, M. D., submit the following report, being a compilation, by the chairman, of two sub-reports made by the other members. We approach our labors with a feeling of responsibility and misgiving, being called upon to sit in judgment upon the work of two home institutions, loved, cherished, and the pride of us all. To pass lightly and slightly over our work and report favorably in all particulars, we should be recreant to the trust confided in us by the State Medical Society, and do an injustice to our schools, of which we are justly proud.

The chairman met his collaborators early in October,

1886, and the following programme was mutually agreed upon: Dr. G. W. Davis and Dr. F. Delmont were assigned to the University, and Dr. L. O. Rodgers and Dr. C. A. Kirkpatrick to Cooper, the members of the sub-committees to assist each other as occasion might require or inclination prompt. It was made incumbent upon the chairman of each sub-committee to see that one or more of the members of the committees were present at each and all of the final examinations. At the close of the examinations the papers constituting the written exercises were to be collected by each sub-committee, passed in review, contents noted, and then submitted to and reviewed by the entire committee of five members. This course was not only approved by all the members of the general committee, at the preliminary meeting, but endorsed by the President of the Society and members of the faculties of the two colleges to whom it was submitted. The general committee was called twice, giving one session to the review of the papers of each school.

The reports of the sub-committees are given in the order received, each signed by the members of both. These reports are as follows :

SAN FRANCISCO, JANUARY 21ST., 1887.

A. B. Stuart, M. D., Chairman of Committee on Graduating Exercises of the State Medical Society of California:

In October of last year, you requested the San Francisco members of the committee to attend the final examinations of the Cooper Medical College and of the Medical Department of the University of California, to scrutinize the final examination papers of applicants for the degree of M. D., and finally to make to you a written report of the result of their work. In accordance with this request the undersigned, who were appointed by you to report upon the investigations pertaining to the Cooper Medical College, respectfully report as follows :

Professor Henry Gibbons, Jr., Dean of the College, by request, kindly furnished the committee a schedule detailing time and place of the examination conducted by each professor. One or more of the committee were present at each examination. The members of the committee, in every case, were cordially received.

Though the "Annual Announcement" says "written and oral," the final examination was exclusively a written one, the questions varying in number from ten to twenty-five, and the credits for each answer varying accordingly.

Each student was furnished with, or made for himself, a copy of all the questions in any branch, at the beginning of the examination in that branch.

A reasonable time was allowed in which to answer the questions, the professor personally supervising the examinations from beginning to end. The students were so placed that communication with each other during the examination was scarcely possible; and your committee observed no effort on the part of the students to do so. The air and manner of the students impressed us with the belief that they had been successfully taught that the calling of the physician is a serious and earnest one.

They did not approach the examination as though it were a gala day, commemorative of their release from assiduous labor, but rather with a mien sobered by the conviction that their degree, when achieved, not only dignified their status in the community, but also imposed upon them the weightiest responsibilities with which a human being can be burdened.

Drs. Rodgers and Davis were informed by several professors that much time is devoted, during the lecture term, to oral examinations, reviews of previous lectures, and other similar exercises; so much, in fact, that a final oral examination was considered superfluous.

The questions propounded at the final examination were, in most cases practical, and competent to test the professional knowledge and good judgment of the stu-

dents. A per centum of seventy-five on the examination was a pre-requisite to graduation. A few of the students were entitled to this minimum on all of their papers; others fell below in one or more branches, but offset their shortages by superior standing in other departments. Only one of the twelve applicants for the degree fell below the minimum on the grand total. This failure was attributed in part to the fact of the gentleman being a foreigner and not familiar with the English language. Your committee, however, fully endorses the action of the Faculty.

As a matriculating examination is required by this college, it might be expected that the literary attainments of the students, as shown by their written work, would be of a high order. In some instances this was true, as shown by the correct orthography, explicit sentences, proper punctuation and the systematic arrangement of the subject matter. In other cases the style was slovenly, and many of the laws of composition were violated. This criticism has the less weight, however, when we consider the haste with which some of the work was necessarily done.

Some of the professors have divided the work of their departments into three equal parts, a year being devoted to each part, an arrangement that we consider highly commendable. We were informed that all the other professors are adopting the same course as rapidly as possible. It gives us pleasure to record the fact just mentioned; for nothing can be more unphilosophical than the custom of introducing the tyro, the moment he has crossed the threshold of a medical college, into the abstruse regions of a high medical knowledge. No science can be successfully taught from the top downward; and we can have only words of severest condemnation for those colleges which still maintain the illogical system of delivering from year to year the same lecture to an audience composed promiscuously of crude recruits and stu-

dents well grounded in the elementary branches of medical science.

A happier day for medical learning is dawning, and we can give but due meed of praise to both our medical colleges for placing themselves in the vanguard of higher medical education.

It would, probably, be superfluous for us to speak of the splendid home of this school, the Cooper Medical College building. Its lecture rooms, laboratories and clinic rooms are all that could be desired.

If the State Medical Society continues to appoint a commitee on "Graduating Exercises," we suggest that a final oral examination be held in the presence of the committee, as it would be a heavy tax on the time of the members of the committee to attend all the oral examinations during the lecture course; yet it would materially aid in forming, or approximating, a correct judgment of the proficiency of the candidates for graduation. The "Green Room" ordeal, with the privilege of interrogation, is recommended.

In conclusion, we say that in the main, we highly commend the methods and work of this school; especially do we this in view of the assurance that, year by year, the matriculating examination is becoming more exacting, the teaching more systematic, and the requirements for graduation more rigid.

All of which is respectfully submitted,

[Signed] LEE O. RODGERS,
C. A. KIRKPATRICK,
G. W. DAVIS,
F. DELMONT.

The foregoing was reported by Lee O. Rodgers, M.D., chairman of the sub-committee assigned to Cooper Medical College.

SAN FRANCISCO, January 24th, 1887.

A. B. Stuart, M. D., Chairman of the Committee on Graduating Exercises:

DEAR SIR: In conformity with an arrangement at a meeting of the "Committee on Graduating Exercises," of which you are chairman, we herewith submit our report on the graduating exercises, of the Medical Department of the University of California, to which G. W. Davis, M. D., and F. Delmont, M. D., were particularly assigned.

In accordance with a programme, kindly sent to the members of the committee, by the honored and respected Dean, Pofessor R. A. McLean, M. D., Drs. Rodgers, Delmont and Davis attended at the appointed hours of most of the professors. Professors Cole, McNutt and Kane were absent on account of urgent, professional duties; therefore, we did not have the pleasure of meeting those gentlemen. The other members of the faculty, it was our pleasure to meet, and by each of them we were received in the most kind and cordial manner.

We remained with each professor as long as it was practicable or necessary. Each professor spared no pains in explaining to the committee his individual and special methods of didactic and clinical teaching of medicine and surgery; and we were impressed by their comprehensiveness and practicability. In no case could we suggest any improvement.

The curriculum of the Medical Department of the University of California is as complete and as perfect as that of any medical school with which we are acquainted; and in our judgment, more perfect than many of the medical schools of our country.

In this school the examinations consist of oral, written and green-room work. The green-room examination passed off satisfactorily to the members of the committee present. The written examinations have been carefully examined; and, in obedience to our duty, we can

not report them as being as satisfactory as it would afford us great pleasure to do. But few of the professors mark on the examination papers the percentage of each candidate for graduation, which should have been done for the benefit of the committee; and those who did so mark were generous, unless taken as a whole, with the oral examinations. A few of the candidates indicated by many of their answers a want of a clear and proper idea of the questions propounded; also, the lack of correct orthography and exact grammatical expression.

Taken as a whole the class did not come up to our expectations, based upon the well-known reputation of the school. While this is admitted by every member of the committee it does not detract from the above mentioned reputation, or the painstaking manner in which the entire faculty has endeavored to train the pupils for the responsible duties of our profession, for no school can avoid conferring a degree, whatever that degree may be, when all the candidates have obtained the minimum requirements. Your sub-committee suggest that we urge upon the faculties of the Medical Schools of San Francisco, to allow no person to matriculate, until satisfied that the applicant has a sound, practical, English education. We are aware that this is at present one of their requirements, but it might be well to respectfully ask its absolute enforcement.

We recommend that the President of the Medical Society of the State of California appoint the committee on graduating exercises as early as possible, the majority of the members to reside in San Francisco or vicinity, so that they can attend when convenient, or in accordance with an arrangement by the general committee during the sessions of the schools if considered best to do so; and listen to the didactic, clinical and oral examinations, thereby, not only discharging an official duty, but, no doubt, personally receiving professional benefits. They can note the special methods of each professor, and the

promptness and correctness with which the students answer the questions propounded. In this way the committee can make a report that will be more thoroughly exact and just.

Finally, we cannot avoid the conviction that the "committee on graduating exercises" is a needless appendage to the Medical Society of the State of California, and that it can be dispensed with without detriment to the profession of the State, or the efficiency and usefulness of our colleges.

[Signed] G. W. DAVIS,
F. DELMONT,
L. O. RODGERS,
C. A. KIRKPATRICK.

The foregoing was reported by G. W. Davis, M. D., chairman of the sub-committee, assigned to the Medical Department of the University.

The apparent conflict of opinion in the two reports of the sub-committees vanishes when duly considered, and the chairman of the general committee is to be congratulated upon the careful, diligent work and harmony of thought of his associates.

A REPORT OF COMMITTEE

ON THE

FORMATION OF A MEDICO-LEGAL BOARD.

DR. A. B. STUART, Chairman, Santa Rosa.

Mr. President and Members of the Medical Society of the State of California:

Your committee appointed for the purpose of investigating the subject of forming an auxiliary Protective Union, begs leave to report:

The chairman of this committee having heard but from one member, and having been by that member most kindly requested to pursue the investigation untrammeled by any suggestions that he might make, entered into correspondence with members of the profession in this and other States, and hereby returns thanks, for information promptly and freely given, to Dr. E. J. Doering, of Chicago, who has been instrumental in the formation of a Medico-Legal Society in that city, and was its first President.

Dr. Doering has advised with leading members of our our profession, at home and in Europe, and has taken counsel of several members of the legal profession known for their learning and ability, all of which has been placed at the disposal of your committee; and the information thus gained shows not only the great advantage of such an organization, but its feasibility. However, the territory covered by the membership of the Medical

Society of the State of California is too great for the efficient working of a separate society, even should it be auxiliary to the State Medical Society. Therefore, your committee recommends the formation of a Medico-Legal Board, as less expensive and more beneficial in its results. To have an auxiliary society, with its sole or principal object the prevention of blackmail, would tend to create in the minds of the public a prejudice against it that would warp the judgment of the average juror and thwart the object for which it was designed.

The formation of a Board having no authority excepting that delegated to it by the State Society, and having for its object the interest and welfare of our patrons, as well as ourselves, would not be open to the charge of selfishness, as would a separate Society, even should its scope cover the same ground, and the expense be but a small fraction of the latter. The former would be the creation of the State Society, and would have the entire membership to support it; the latter could not, and, as said before, would cover too great a territory to be efficient in its workings.

The following resolution is offered, not as a change or alteration of the Constitution or By-laws, but simply as a resolution, to take effect on its adoption; and then, if so desired, by due notice, in a year hence, it can, be incorporated with the Constitution:—

Resolved, That a Medico-Legal Board shall be and is hereby created, consisting of the members of the Board of Examiners and alternates, the duties of which shall be to investigate unprofessional and criminal practices by members of the Medical Society of the State of California, and to supplement the duties and authority of the Board of Examiners, resorting to the courts of justice for suitable punishment in such cases as may be considered advisable. Another object shall be the prevention of blackmail; and, with the assistance and co-operation of the Committee on Medical Legislation, to en-

deavor to procure such legislation as may be necessary to secure the ends above enumerated. The Medico-Legal Board shall have full power to incur all expenditures necessary to carry out the objects of its creation as above mentioned. Also, it shall have advisory relations with the Committee on Mental Diseases and Medical Jurisprudence, on all that relates to Medico-Legal subjects.

The President and Secretary of the Board of Examiners shall be ex-officio President and Secretary of the Medico-Legal Board. The President, or Chairman, will vote only when necessary to give a casting vote; but in all other duties will be governed by the rules and regulations of the Board of Examiners. The alternate members have equal rights, privileges and duties with the other members; but should be chosen so as to represent the State at large, so far as the duties of the Board of Examiners will permit.

The question presents itself, "Why have the Board thus formed?" Of a necessity, great latitude and discretionary power must be given in such Board, and its membership should be larger than that usually given to such appointive or elective agencies, and should be selected with great care; all of which is found in the Board of Examiners. In addition to this, the members have had previous experience in much work germane to both Boards, and it will be much less expensive to seek legal advice, as both Boards can employ the same attorney. As the Secretary of the Board of Examiners has authority to employ assistance, his work in that office is discretionary, and it will be the same in the Medico-Legal Board. Both time and expense of traveling can be saved by a judicious selection of the alternates from [illegible]rious portions of the State, for in case of prosecution [illegible] Board, or in suits for malpractice, where the de- [illegible]ght consider it a case of blackmail and ask for [illegible]tion, the presence of one or more of the [illegible] required.

REPORT ON A CASE OF ALLEGED MALPRACTICE.

WINTERS vs. GRAVES.

By A. B. STUART, M.D., Santa Rosa.

Mr. President and Fellows of the Medical Society of the State of California:

At the request of an honored member of this Society and one who took an active part in sustaining our worthy fellow, Dr. G. W. Graves, in the above-mentioned suit, I have reviewed this celebrated case, and I present the review as a voluntary report.

The case having been brought before you through the columns of the *Pacific Medical and Surgical Journal and Western Lancet*, the organ of our State Society, will require but few words of explanation.

The expert evidence on the part of the plaintiff was to the effect that Mrs. Winters had sustained an oblique fracture of the shaft of the tibia, the lower end of the upper fragment being about an inch above the astragalus, and that there was a ligamentous or imperfect union, with about an inch shortening, but no injury done the fibula. The latter portion of the foregoing diagnosis was confirmed by all the experts on the part of the defense, but the former was denied both as to the fracture, ligamentous union and shortening. Yet there was a difference of opinion among the experts called by the defense as to

the exact injury sustained by the plaintiff. The greater number, however, fully sustained Dr. Graves in both his diagnosis and treatment, viz: A severe sprain of the ankle-joint, treated by position, rest (no splints), lotions, and opiates internally to control pain. A few, in addition to the violence done the soft parts, diagnosed an oblique fracture of the internal malleolus; among the latter is the author of this report; but all endorsed the treatment.

In the presence of two other surgeons and one of the prosecuting attorneys, I made a careful examination of the injured part, with the following result: One and a half inches above the extreme lower portion of the internal malleolus, in the course of or near the crest of the tibia, there was a depression or notch, which, after long and steady pressure, became quite distinct, conveying to my mind the idea of a fracture; but, so far as the depression and the immediate surrounding surface of the tibia were concerned, it was impossible to say what course or direction the line of fracture had taken—up, down, or tranverse; but believing the depression or notch to be the terminus of an oblique fracture, and knowing that the union, which was firm, must have been by interposition, or the "second order of repair of broken bones," as given by Hamilton, and that there could be no callus upon the front and inner surface, due to the superficial covering of the bone, it would be found, if found at all, upon the posterior and outer surface. Hamilton says: "It is not an unusual circumstance to find the shaft of the tibia, during the process of union, presenting no exterior callus upon its anterior and inner surface, whilst the posterior and outer section of its circumference is covered with an abundant deposit."

Carrying my hand around the leg with the same firm pressure by which I detected the depression or notch in front, a callus was found upon the posterior surface, not, however, extending obliquely upward, as would have

been the case in a fracture of the shaft, as described by one of the experts called by the plaintiff, but obliquely downward to the articulation of the tibia with the astragalus. Believing that I had to deal with an oblique fracture of the internal malleolus, and that the notch in front indexed the upper end of the lower fragment, careful and repeated measurements of the leg were instituted. From the internal tuberosity of the tibia to the internal malleolus, there was just one-eighth of an inch shortening, compared with the counterpart on the other side; from the external tuberosity of the tibia and the head of the fibula to the same objective point, the same degree of shortening was observed; but from those fixed points above to the astragalus and the external malleolus there was no shortening, judged by the same comparison. On further investigation, inspection showed a turning in of the foot with slight adduction, which, upon examination, proved to be more apparent than real. Manipulation conveyed the impression that a severe sprain of the deltoid and internal annular ligaments had been sustained. There was even then, at that late day, some swelling, and a slight stiffness or imperfect motion of the joint, but scarcely worthy of the name of incomplete anchylosis.

Diagnosis: An oblique fracture of the internal malleolus, with a severe sprain of the ligaments of the ankle joint, possibly a rupture of the deltoid.

The eighth of an inch shortening had evidently been caused by a slight upward movement of the lower fragment, due to a spasmodic contraction of the tibialis anticus and tibialis posticus muscles, in conjunction with the plantaris, soleus and gastrocnemius, and the apparent depression or notch by the absorption of the extreme upper portion of the same fragment.

Sir Astley Cooper describes, under the title of "Dislocation of the tibia outward," an oblique fracture of the internal malleolus, a very similar case to this, and speaks

of such a fracture being very dangerous on account of the great violence necessarily done the soft parts. In sustaining such a fracture, the force upon the foot would most likely rupture one or the other of the lateral ligaments, as the foot usually turns out or in; if out it would be the deltoid, if in it would be the middle fasciculus of the external; but let the foot turn as it may at the time of the injury, when the parts are adjusted it would be likely to incline to the side of the greater force and lesser resistance, as in the present case, inward.

As a rule, no measurement that compares one part of the human body with its counterpart on the opposite side is reliable in estimating the exact shortening of a broken and reunited bone, for it has been established beyond a doubt that asymmetry is normal and symmetry the exception, but here the presumptive evidence is strongly in favor of the exception as to the shortening of the internal malleolus, as shown by the measurements and comparisons previously described, and positively rejects the diagnosis of a fracture of the shaft of the tibia, ligamentous union and an inch shortening, as made by the experts on the part of the prosecution. Their diagnosis is self contradictory, as this review will show.

Judging from the evidence given, both on the part of the plaintiff and defendant, it may be assumed that the fibula has not been broken or dislocated, therefore there cannot be any appreciable shortening of the leg in consequence of the injury done the tibia, as each bone in its normal condition is a support to its fellow, and in case of fracture of one, the other acts as a splint preventing displacement and shortening. That there can be no material shortening in such cases is an anatomical fact, and is affirmed by "Hamilton on Fractures and Dislocations," a most careful and acceptable review of all such records accessible, from the days of Hippocrates, 460 years B. C., to the date of the last edition, 1884, A. D.;

and Erichsen in his "Science and Art of Surgery," in tréating of fractures of the tibia and fibula, says, "When one bone alone is broken, it is not always a very simple matter to determine the existence of the fracture; the sound bone acting as a splint prevents displacement, and keeps the limb of a proper length and steady."

As has been stated, asymmetry is normal and symmetry the exception, therefore, without a previous measurement, or where only one of two parallel bones is broken, a comparison with the counterpart is valueless. The attention of the profession was called to this irregularity of corresponding parts of the same human body about the year 1863, by Duparque; and in 1877, Dr. Morton, of Philadelphia, analyzed 513 cases, reporting asymmetry in 272. This want of normal symmetry has been spoken of by other observers.

Where both the tibia and fibula are broken, the average shortening is half an inch, as shown by statistics, but even an inch shortening will not materially interfere with the use of the leg in either standing or walking, as the pelvis adapts itself to the condition of the legs. I have seen persons walk well without either crutch or cane, having an inch shortening of one leg; and Hamilton mentions the case of a sailor who sustained a compound fracture of both bones, the tibia requiring the removal of an inch of the lower end of the upper fragment, causing a lapping of the fractured ends of the fibula when those of the tibia were brought in apposition, recovery taking place with one and a quarter inches shortening. Yet, in fourteen months he performed all the duties of an ordinary deck-hand on board of a schooner, thus showing that did we admit the impossibility of an inch shortening, in the case under consideration, this would fail to account for the trouble complained of, and we must go further to find even the existing trouble or deformity, which is much less than claimed by the plaintiff, and it is found in and about the ankle joint,

involving both the osseous and the ligamentous structures. The internal annular and lateral ligaments were not only badly sprained, but probably ruptured. And a rupture of the deltoid or lateral ligament of the inner malleolus, is a serious loss, much more so than a simple fracture of the shaft of the tibia, as described by two experts on the part of the plaintiff, a loss that nature can seldom fully repair, which statement is supported by Hamilton. There is also evidence of an oblique fracture of the inner malleolus, implicating the ankle joint, a very grave complication. A fracture involving any joint, especially the ankle and knee, is usually followed by rapid, sometimes immediate swelling, as was probably the case here; if so, the fracture would have been obscure and not detected without doing unjustifiable violence to the injured part. It is said by high authority, the *International Encyclopedia of Surgery*, that "a prudent surgeon will restrain his curiosity, in such cases, and not push his examination too far." The ankle joint and adjacent soft parts being greatly swollen, the patient complaining of severe pain, the foot in line with the leg, or in its supposed normal position, the eye unable to detect any displacement, a judicious surgeon would content himself with carefully placing the injured part at rest, applying suitable external remedies, and giving opiates internally to control pain and to buoy up the nervous system.

Such a fracture, as I believe this to have been, might be overlooked without attaching any blame to the attending surgeon.

In this fracture the lower fragment showing no detachment and displacement downwards, as is usual in simple or the ordinary fractures of the internal malleolus, the foot required no force or appliance to incline it inward; in fact, as the sequel shows, such treatment might have been injurious if pursued.

Hamilton and Stimson both report cases of fracture

treated without splints, and speak of favorable results, but the word favorable, in those severe injuries, does not mean perfect, as is shown by those same authors. The result in Dr. Graves' case is fully an average in such injuries, and would not likely have been better under any treatment, however skilfully or attentively given. It was no better in the case of Sir Astley Cooper, previously mentioned, yet the profession of the civilized world acknowledge him a master in the art of surgery.

There are conditions in which it is impossible to make a correct and satisfactory diagnosis, and those conditions are frequently found in injuries of the ankle-joint and adjacent parts. Even such experienced surgeons as Malgaigne, Bounet, Huguier and Legouest have mistaken fractures of the calcaneum for that of Pott. And Able, a distinguished Prussian surgeon, made a similar mistake, a postmortem revealing the erroneous diagnosis, and yet, who would think of blaming Able, or calling in question the ability and work of that honored exponent of the science and art of surgery? And that even more distinguished French surgeon, Malgaigne, afore mentioned, speaks of mistaking a hardened condition of effused blood for a fracture of the femur. When such national representatives of our profession, devoting their lives to the study and practice of surgery, make such mistakes, should you, can you expect more of the general practitioner of medicine and surgery, who probably does not see one of those rare, difficult and obscure cases for each of their hundred. This is especially true in this case where there is a better result, in not only saving the life of his patient, but in giving her a reasonably useful limb, fully up to the average. Even had it been possible to make a correct diagnosis when the case was first seen, a better result could not have been expected, and Dr. Graves should have been acquitted on the result alone, without reference to the mode of treatment. As a rule the result is the crucial test of all treatments.

The diagnosis of the surgeons testifying for the prosecution is erroneous, the condition of the leg they describe an impossibility, and the records of surgery fail to justify them in their opinion.

REPORT OF THE COMMITTEE

ON

MEDICAL LEGISLATION—WITH SUPPLEMENT.

By IRA E. OATMAN, M.D., of Sacramento.

Mr. President and Members of the Medical Society of the State of California:

As a member of your Committee on Medical Legislation, and with the advice of the chairman of that committee, Dr. Plummer, I called on Dr. Briceland, of the Senate—early in the last session of the legislature—and suggested to him that inasmuch as there was no apparent demand for amendment to the existing law and its amendment, regulating the practice of medicine and surgery, nor any expressed desire on the part of this Society to urge the passage of a substitute therefor, that it would meet the approbation of this Society, and the profession generally, to make no effort to secure the passage of any medical law, or amendment to the existing law, during the session; but should any bill be offered in either house in the interest of irregular and incompetent practitioners, or to repeal the existing law, that we would endeavor to secure its defeat. Dr. Briceland entertained precisely the same views. He suggested that, if any such bill should be offered in either house, he would inform me immediately—that I might advise the chairman of the committee and send him a copy of the bill—that he might come to the capital himself, and invoke such other

assistance as might be adequate to the emergency. I watched the proceedings of both houses carefully, and saw no notice of any bill for any medical law. Neither did Dr. Briceland give me notice of any such bill. So you perceive we had no third house work to do at the last session of the legislature. During former sessions different bills were introduced, obviously adverse to the interest of science and of humanity, but plainly in the interests of quackery in its various forms—advocated, as we were informed, by hired attorneys in the legislature, who battled for wrong with earnestness and strategy, worthy of a better cause. But through the influence of the able members of the profession in both houses of the legislature—aided by the Committee on Medical Legislation, of which I had the honor of being a member for several years, and two or three times its chairman —and aided also by eminent medical gentlemen from San Francisco, the "mighty truth" prevailed, sound discretion governed, and vicious legislation was averted in every instance.

I understand that whilst the present law is decided to be constitutional and its validity recognized by the Supreme Court of this State, that under its provisions, convictions continue to follow judicious prosecutions. Perhaps the law might be made more concise, yet its provisions include most of the fundamental principles required in a law to regulate the practice of medicine and surgery. Your humble servant is willing to let the present law remain a few years longer as it is. The public mind is still ripening to a just appreciation of its necessity and of its utility, and will easily glide into its hearty approval. For, when logically considered, a judicious law regulating the practice of medicine and surgery, is readily and properly classed in importance, with laws against arson and burglary, robbery and murder!

The foregoing was intended to be offered as a supplement to the contemplated report of the chairman of your

Committee on Medical Legislation. But he (Dr. Plummer) has respectfully invited me to continue the subject further, to relieve him from the labor of writing a formal report, to do justice to which, time and opportunity utterly forbid. I accepted the responsibility offered, but so recently, that I have not had time to give attention to the subject adequate to its importance. I would suggest, however, that the Committee on Medical Legislation for the ensuing year, be instructed by a vote of the Society at this session, if the Society deem it expedient, to prepare a bill for a law regulating the practice of medicine and surgery in California, to supersede the existing law, with a section for its repeal. And that such bill be reported to this Society at its next annual meeting in 1888, for its approval and recommendation, and in time for its members to aid, as far as may be, in electing members of the next legislature to meet in 1889, with broad philosophical and statesmanlike views, who would secure its passage, without adverse and strenuous opposition thereto in the interests of quackery.

Such bill, emanating from this great Society, with its approval and recommendation, would reach the Legislature on an altitude far above that of partisan politics, and would confront the elected representatives of the entire constituency of the State, with a great sanitary measure in their behalf, which would also aid and sustain them in no small degree in their financial prosperity and success. I need not say that such result would give general satisfaction. It would do more. It would popularize and sustain the demonstrable claims of science, and enrich and elevate public sentiment in its acceptance. Should the Society determine, however, to postpone all action a little longer, for change of, or substitution for, the medical law, as intimated in the foregoing supplement hereto, the laws of sequence and consequence are immutable, and the good results above foreshadowed, might be just as fruitful, and the action

necessary thereto just as opportune a few years hence as if commenced now. Let the Society decide.

The law at this time regulating fees for medical expert testimony in courts gives the presiding Judge the power to fix and allow the amount in each case. To meet the behests of the Commonwealth, and sustain the law, and at the same time, to do justice to the culprit, generally requires the expert medical witness to be well endowed by nature with thorough professional attainments, with wisdom and skill from ample experience, and with philosophical observations adequate to the importance of the case. The above qualifications abound, and may be expected in the members of this Society. Yet they are not found in every one who claims to be a physician or surgeon. Medical expert testimony, to be of intrinsic value, must be given by those possessed of the above endowment and qualifications, and should be remunerated in proportion to its importance and the time lost, or given to the case. In the notorious Troy Dye murder case in Sacramento, many of our ablest physicians were detained in court upon its order, for several days, before their testimony was called for. In criminal, especially in murder cases, we are sometimes required to remain in court to hear the evidence on which to give our expert testimony, on which rest the scientific importance and influence of all the evidence in the case. The responsibility thus forced upon us is so great that it is obvious we ought to receive much larger fees than the courts usually allow us. We do not wish to shrink from any duty of loyal citizenship, but we are entitled to reasonable compensation for the quality and extent of our expert testimony. As accidental witnesses, we testify as others do, and ask no more pay therefor. But to be compelled to hear the evidence from which to formulate scientific expert medical testimony acceptable to the court involves a profound knowledge of the case, and some of the most scientific, philosophic and intricate points in medical jurisprudence.

REPORT OF COMMITTEE

ON

DISEASES OF WOMEN AND CHILDREN.

By O. O. BURGESS, M. D., San Francisco.

Mr. President and Members :—In the present arrangement of our Standing Committees, we have a Committee on Obstetrics, a Committee on Gynecology and a Committee on Diseases of Women and Children.

Formerly all three of these committees were comprised in one, under the title of a Committee on Obstetrics, whose duty it was to report, not only on obstetrics proper, but also on the diseases of women and children. But the rapid advancement of knowledge, and especially the wonderful expansion of the subject of diseases of women soon rendered it imperative that there should be a subdivision of the committee on obstetrics in order that justice might be done to the vast subjects comprised in its scope. In this way the present arrangement of the three committees under consideration came to be made.

Now, in view of the fact that all the diseases of women requiring separate and especial consideration are properly included in the reports on obstetrics and gynecology, it would seem that the committee on diseases of women and children is superfluous so far as the diseases of women are concerned. I would suggest, therefore, that this committee be abolished, and [illegible] committee on the

medical and surgical diseases of children be substituted in its place. In making this suggestion my object is not merely to effect a more systematic arrangement of committee labor, but also to endeavor to bring the consideration of the diseases of children into greater prominence in our proceedings. I believe that the establishment of a committee whose attention shall be devoted solely to those diseases, will go a long way toward the accomplishment of that end.

In accordance with these views, therefore, I move that Section 1 of Article V of the Constitution of this Society be amended by striking out the words "On Diseases of Women and Children," and by substituting in their place the words "On the Medical and Surgical Diseases of Children."

REPORT ON NECROLOGY.

By BENJ. R. SWAN, M. D., San Francisco, Chairman.

Dr. W. S. Thorne, President, and Members of the Medical Society of the State of California:

The Committee on Necrology beg respectfully to make the following report: So far as can be ascertained, three deaths have occurred in our membership since the last annual meeting. The first summoned was

DR. WILLIAM H. BRUNER,

Who died in San Francisco, August 10, 1886. From a paper read before the San Francisco Medical Benevolent Society, and published in the *Western Lancet*, October, 1886, we learn that Dr. Bruner was born in Chester County, Pennsylvania, May 17th, 1826, of remote Swiss extraction, and graduated in medicine and surgery at the Jefferson Medical College, February 17, 1848. When twenty-two years of age, smitten with the gold fever, he came to California, arriving in August, 1849. He sought the mines, and after the usual experience in mining, resumed the practice of his profession in the then thriving mining town of Sonora, with such marked success, that he sought a larger field, and established himself in San Francisco. He was so successful here, that he was soon enabled to visit the medical centres of Europe, spending most of his time in the hospitals in Paris. On his return to San Francisco he was received with generous favor, which he commanded, until failing health limited his physical ability to do justice to his practice.

Those who knew him best assert that he had not his superior in clinical ability on this Coast. Courageous and self-reliant, he met the issues of practice with the imperturability of a sphynx, never betraying his thoughts or emotions, however strongly moved.

Some four years before his death, he began to show symptoms of uremic poisoning. This continued with varying fluctuations, till a few weeks before death it was observed by his friends that his mental activity was becoming more clouded, with a tendency to attacks of partial cerebral compression. Toward the last, physical debility and waste supervened, until death came to his relief.

His personal characteristics may be summed up, as follows: A man quiet and reserved in manner, indifferent to the attacks of enemies, and intensely loyal to his professional friends.

He was a member of the County Medical Society, the San Francisco Medical Benevolent Society, and the Society of California Pioneers.

The second member called was

DR. JOHN SCOTT,

Who died in San Francisco, December 24th, 1886. At the request of your chairman, his friend, Dr. George Chismore, has furnished a brief notice, as follows:

"On the 24th day of December, 1886, there died in this city, one who for the last twenty years has been a prominent member of the profession in this State, Dr. John Scott.

"Born in county Tyrone, Ireland, in 1821, he began the study of medicine in early youth, and was graduated from the Royal College of Surgeons, Ireland, in 1841, and two years after received his degree in medicine from the College of St. Andrews, Scotland. He became a Fellow of the Royal College of Surgeons, Ireland, in 1844.

"Soon after, he was appointed surgeon to one of the vessels of the Peninsula and Oriental Steamship Com-

pany, and, after a brief term of service, resigned to establish himself in practice in Madras, India, where he remained some twenty years.

"He visited London, in 1866, and while there was made Fellow of the Ethnological Society. He came to this State in 1867, and entered into practice in this city as specialist in gynecology. In the following year he organized the California State Women's Hospital, and for nineteen years, up to his death, he held the position of surgeon-in-chief to that institution.

"Owing to his untiring energy and the aid of those whom he appointed to his staff, the hospital was built up from a small beginning to a prosperous and self-supporting institution which remains his most appropriate monument.

"In 1871, he became a member of the California State Medical Society, and was a regular attendant upon its meetings, always interested and often participating in its discussions. He was also a member of the San Francisco County Medical Society, Fellow of the Obstetrical Society of San Francisco and Fellow of the American Gynecological Society.

"He was a very ambitious and energetic man, tenacious of purpose and an untiring worker. Even in his last illness he would not lay aside the harness, but continued to see patients almost to the day of his death.

"A large circle of patients feel deeply the loss of a skillful, daring and successful surgeon, many friends miss the hospitable and kindly man, a widow and two daughters mourn the death of a good husband and father. May he rest in peace after his years of labor."

The last of the three in point of time was

DR. HIRAM S. BALDWIN

Who died in San Francisco, March 21st, 1887, in the sixty-ninth year of his age. He was a native of Pennsylvania and received his diploma from the Pennsylvania Medical

College. He was a member of the San Francisco County Medical Society and for many years filled the office of Treasurer. A long residence in California, a faithful and conscientious discharge of his professional duties towards his clients made him many warm friends who mourn his loss as one gone out from their own immediate families.

Since the above report was written, the attention of the Committee has been called to the death of two other members of the Society, Drs. Twitchell and Stockton.

Through the kindness of Dr. G. P. Reynolds, of Alameda, I am enabled to give some facts concerning Dr. Twitchell, and through Dr. Thos. Phillips, of Stockton, particulars concerning Dr. Stockton, who was formerly his partner.

WILLIAM L. TWITCHELL, M. D.,

Was born February 17th, 1825, at Bethel, in the State of Maine.

He commenced the study of medicine in 1846 under the instruction of Dr. John S. Lincoln of Brunswick, Maine. In May, 1850, he graduated at the Medical School in Brunswick. In July of the same year, he came to California and settled in the Mariposa mines where for three years he devoted his time to gold mining and attending to the practice of medicine when he could not well avoid it. He was successful in mining and returned to New York in July, 1853, was married, and in the December of the same year became a member of the class at the Medical College on 13th Street and attended clinical lectures at Bellevue Hospital. In 1854, he settled in Benton Center, Yates County, N. Y., and practised his profession. The winters of Central New York not being to his liking, he returned to California in 1860 and remained in Oakland two years. In 1862, he came to San Francisco, where he successfully practiced his profession.

Ten years ago, he invested in real estate in Alameda,

where he resided with his family up to the time of his death.

He died Sunday morning, Dec. 5th, 1886, of heart disease, after a few hours' illness, at one of his farms, 9 miles south of the town of Merced, whither he had gone on a visit of inspection.

Dr. Twitchell was widely known throughout the State, and highly esteemed by all who knew him.

ELIAS ALANSON STOCKTON, M. D.,

Was born in Philadelphia, Penn., Sept. 19th, 1830; graduated from the Ohio Medical College, Cincinnati, Ohio, in 1853; and from the University Medical College, City of New York, in 1856; practiced first in Cincinnati, then in Illinois. Being in very poor health, (pulmonary hemorrhages) went overland to Oregon, and got better; went East, and married, and located in Minneapolis. The climate being too rigorous he came from there to Stockton, Cal., where he enjoyed the confidence of the people, resulting in a large and lucrative practice. He died June 30th, 1886.

TREASURER'S REPORT.

YEAR, APRIL, 1886, TO APRIL, 1887.

APRIL 20, 1887.

G. C. SIMMONS, M.D., Treasurer, in account with MEDICAL SOCIETY OF STATE OF CALIFORNIA:

RECEIPTS.

Cash from Dr. Briggs	$1,173 25	
" " Dr. Tyrrell, ex-Treas	421 00	
" " Dr. Briggs	40 10	
Cash receipts		$1,634 35
Receipted bills:		
From Dr. Briggs	$195 25	
" " "	106 40	
Total receipted bills		$301 65
Total receipts		$1,936 00

EXPENSES.

Advertising:—Examiner, (1) $5.00; Bee, (5) $5.00; Call, (4) $4.50; Rec.-Union, (3) $5.00; Bulletin, (2) $10.00		$ 29 50	
Printing certificates, (6)		210 00	
Annual Publication, (7–8–9)		1,000 00	
		$1,239 50	
Bills paid by Dr. Briggs:			
Hall Rent (11)	$60 00		
Prize Essay (18)	50 00		
Stationery (12)	8 50		
Bancroft & Co., stationery and printing (13)	42 50		
Crocker & Co., ledger (15)	3 90		
Type writing, (16)	2 50		
Stationery (14)	34 25		
Secretary's services (17)	100 00		
		$301 65	
Total expenses			$1,541 15
April 22, 1887, Balance on hand			$394 85

Parentheses indicate No. of Vouchers.

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, active and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local Society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one-half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the

community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Active Members.—Every physician who shall properly satisfy the Board of Censors; by the exhibition of his diploma, that he possesses the necessary qualification as prescribed, may become an active member of this Society, and all those who may thereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unaminous vote, shall thereby become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location where there is a local medical society and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

AMENDMENTS TO SECTION 4. *a.* Provided, that no physician be elected a member of this Society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, October 10th.]

b. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election" add "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

c. "Shall be entitled to permanent membership," to read "shall thereby become permanent members."—[1875, April 19th.]

d. A license from the Board of Examiners of this Society shall also be required of every candidate.—[1878, April 18th.]

e. Strike out the words, "by the exhibition of his diploma."—[1886, April 21st.]

SEC. 5. Honorary members shall consist of such distinguished *savants* and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

AMENDMENT TO SECTION 6. After "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

SEC. 7. The seal of the Society shall always be kept by the Permanent Secretary.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be a President, four Vice-Presidents, one Permanent and two Assistant Secretaries, a Treasurer, and a board of Censors of five members. These officers shall be elected by the Society at large, during the afternoon session of the second day of meeting. The election shall be by ballot. With the exception of Permanent Secretary, each officer shall hold his appointment for one year, or until his successor is elected.

---

*The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "Vigilance," is crowing out 1870, the year of the re-organization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess, under the direction of Minerva.

AMENDMENTS TO SECTION 1. *a* After the word "ballot," add "except Permanent Secretary."—[1877, April 18th.]

b. After the words, "five members," the Constitution be altered to read: "These officers shall be elected by the Society at large during the afternoon session of the second day of meeting. The election to be by ballot. Except Permanent Secretary, each officer to hold his appointment for one year, or until his successor is elected."—[1884, April 16th.]

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall authenticate the proceedings; give due notice of time of next meeting; serve as a member of Committee on Publication; preserve the archives and unpublished transactions of the Society; hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

AMENDMENTS TO SECTION 4. *a.* Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the So-

ciety to be held in Sacramento, leaving the choice of such place with each session of the Association.—[1873, April 10th.]

b. After "them," add "this officer shall not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

c. Strike out the words "shall reside in Sacramento."—[1881, April 21st.]

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of the duties assigned them; and in the absence of the Permanent Secretary one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II. of this Constitution, the Board of Censors shall recommend such applicants to the Society as suitable candidates for election.

AMENDMENT TO SECTION 7. By adding after the word "election," "in the absence or loss of applicant's diploma, the Board of Censors may accept satisfactory proof that the diploma has been presented to the State Board of Examiners of this Society, and a license to practice issued thereon. It shall be the further duty of the Board of Censors to examine into the present professional standing of the applicants."

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

AMENDMENTS TO SECTION 1. *a.* Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April," as the time for holding the annual meeting of the Society.

b. Changing the time of meeting to the third Wednesday in April.—[1873, April 10th.]

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following standing committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned:

On Practical Medicine and Medical Literature.

On Surgery.

On Obstetrics.

On Medical Topography, Meteorology, Endemics and Epidemics.

On Indigenous Botany and the Domestic Adulteration of Drugs.

On Public Hygiene and State Medicine.

On Histology and Microscopy.

On Mental Diseases and Medical Jurisprudence.

On Medical Education.

On Publication.

On Arrangements.

On Prize Essays.

On Gynecology.

On Diseases of Women and Children.

On Ophthalmology, Otology, Laryngology and Rhinoscopy.

On Necrology.

On Medical Legislation.

On Graduating Exercises.

AMENDMENTS TO SECTION 1. Add the words, "on Gynecology; on Diseases of Women and Children; on Ophthalmology; on Necrology."—[1881, April 21.]

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and, as far as can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also, the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and

the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psychological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable. The duties of these committees shall be defined by a committee of three, appointed by the President for that purpose.

AMENDMENT TO SECTION 9. Add the words, "the duties of these committees shall be defined by a committee of three, appointed by the President for that purpose."—[1881, April 21st.]

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and

graduates at each during the year, together with such other matters as they may deem worthy of consideration in reference to medical education and the reputable standing of the profession.

AMENDMENT TO SECTION 10. It shall be the duty of the Committee on Education to be present on the final examination of the regular medical schools of this State, and to report on the education imparted and required by these institutions as compared with that imparted and required by other States of the Union and of Europe, and on such other matters as they may deem worthy of consideration in reference to medical education.—[1886, April 21st.]

SEC. 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing such of the proceedings, transactions and memoirs of the Society as may be deemed worthy to be published.

SEC. 12. The Committee on Arrangements shall be composed of members residing at the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committees on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it

shall be the duty of the several auxiliary societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special report, embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The standing committees shall constitute sections, after the manner of the American Medica Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of the meeting.

AMENDMENT TO SECTION 14. That the standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso* upon the second day of meeting.—[1874, April 21st.]

SEC. 15. The section of ophthalmology shall include, as subsections, the subjects otology, laryngology and rhinoscopy; the chairman of the section of ophthalmology shall also be chairman of the sub-sections, with power to assign to his associates the various sub-divisions of this section for report thereon.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting

of the Society, by the vote of two-thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communication may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation, shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs and transactions of the Society; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations by prizes and awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be re-instated in his membership until he shall have paid all arrears due by him.

AMENDMENT TO SECTION 3. Any member who shall fail

to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid arrears due by him.—[1874, April 21st.]

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia, in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors, for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived from all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is presented as a By-Law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and, except when temporarily suspended, shall be as follows:

I. Organization of the meeting.

II. Report of the Committee of Arrangements on the credentials of members, after the latter have registered their names and addresses, etc.

III. The calling of the roll.

IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.

V. Reception of members by invitation.

VI. The reading and consideration of the stated annual reports from the standing committees.

VII. Reading and discussion of voluntary contributions.

VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the standing committees.

IX. Resolutions introducing new business, and instructions to standing committees.

X. Unfinished and miscellaneous business.

XI. Reading of the minutes of the session about to conclude.

XII. Adjournment.

RESOLUTIONS RELATING

TO THE

GOVERNMENT OF THE SOCIETY.

Resolved, That the fact of the doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this Society.—[1871, October 12th.]

Resolved, As a sense of this Society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles indicated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, October 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized school, and of good standing; and that no voucher of a single member shall be considered sufficient evidence of his qualifications.—[1871, October 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, October 10th.]

Resolved, That the permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the chairman of the various standing committees hereafter present a synopsis of their several

reports, the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the Society, and have the same published in the next volume of Transactions. —[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this Society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the Society desirous of visiting any foreign medical association.—[1874, April 10th.]

Resolved, That the original founders of this Society are permanent members, and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of County or District Societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical Society, when there is one where they reside.—[1875, April 19th.]

Resolved, That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State, and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the American Medical Association, as well as the code adopted by this Society.—[1877, April 18th.]

Resolved, further, That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society, who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the Society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local Medical Societies and Boards of Health throughout the State be requested to urge their respective city, county and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—1878, April 17th.]

Resolved, That this Society appeal to all ministers of the gospel throughout the State, and urge them to use their influence, in all proper and available ways, to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath,* applied to its individual

members, through ignorance to a great extent, that the name was introduced by Hahnemann, to give distinction to his homœopathic dogmas; therefore,

Resolved, That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath,* as applied to ourselves, or *allopathy,* as applied to our practice, the regular profession of medicine knowing no sectarianism in medicine, practicing no exclusive dogma, nor in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured or their lives prolonged. —[1879, April 16th.]

Resolved, That the Medical Society of the State of California respectfully requests the American Medical Association, at its next annual meeting, to memorialize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box and package of such medicine with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated. [1879, April 17th.]

Resolved, That the Committee on Publication is hereby instructed to receive no paper for publication later than fifteen days after the close of the Annual Session of the Society.

Resolved, That this Society, although formally accepting and publishing the reports of the various Standing Committees and the papers of voluntary contributors, holds itself wholly irresponsible for the opinions, theories, and criticisms therein contained, except when otherwise decided by special resolution.—[1884, April 17th.]

Resolved, That a committee of three be appointed to consider and to report, at a future session of this society, the most proper means of giving general publicity to those portions of the annual address which refer to public-school hygiene and alcoholism.—[1887, April.]

Resolved, That the Medical Society of the State of California, in convention assembled, endorses the project of establishing a monument to Dr. Rush, and recommends that members attending the next annual session be prepared at that time to pay their contributions.—[1887, April.]

Resolved, That, in the opinion of this society, the interests both of the public and of the medical profession will be better subserved by one State Board of Examiners than by two or more, and by examination of applicants than by examination of diplomas, and

That proper provision for the expenses of such board should be made.—[1887, April.]

Resolved, That vaccination should be made compulsory, and that the State Legislature should be urged to enact such laws as shall result in the protection of the entire population from small-pox, that fearful scourge which destroys 30 per cent. of all unprotected persons attacked.—[1887, April.]

Resolved, That the president elect of this society shall appoint a committee of 13 members, which shall constitute a committee to be known as the Building Committee of the Medical Society of the State of California.

Resolved, That said committee, as soon thereafter as may be practicable, shall become incorporated under the above name.

Resolved, That said committee, after being incorporated, shall proceed to issue stock not to exceed the amount of $40,000, in shares of $50 each, said shares to bear an interest of six per cent. per annum.

Resolved, That with the proceeds of the sale of said stock, said building committee shall proceed to purchase a lot, and to employ a competent architect to prepare plans and specifications for a building, suitable for all purposes of the medical profession, and to invite bids for the construction of said building.

Resolved, That said incorporators are hereby endowed with full power to act in their discretion in the building and furnishing of said building.—[1887, April.]

Whereas, Criminal abortions are of frequent occurrence, and the laws of California, attaching penalties to such practices, are so deficient that in a great majority of the cases, even where positively known, it is impossible to punish the abortionist; therefore be it

Resolved, That it is the sense of the Medical Society of the State of California, in convention assembled, that the committee on medical legislation investigate the subject of said criminal abortions, show the defects of the present law, and present a draft of a more comprehensive and specific bill for the consideration and action of this society at the next annual meeting, preparatory to presenting it for legislation.—[1887, April.]

OFFICERS

OF THE

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

1887-8

President,

R. H. Plummer.

Vice-Presidents,

A. H. Agard, David Powell, H. N. Rucker,
L. M. F. Wanzer.

Permanent Secretary,

Wallace A. Briggs.

Assistant Secretaries,

J. H. Parkinson, G. W. Davis.

Treasurer,

G. C. Simmons.

Board of Censors,

Jules Simon, Winslow Anderson, J. D. Arnold,
I. E. Oatman, C. G. Kenyon.

Board of Examiners,

C. E. Blake, Wm. M. Lawlor, C. E. Farnum, C. H. Steele,
T. J. Le Tourneux, A. H. Pratt, Jules Simon.

Alternates,

C. C. Wadsworth, H. H. Hart, A. P. Whittell.

SPECIAL AND STANDING COMMITTEES

—OF THE—

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

FOR 1888

The first named on each Committee being Chairman thereof.

---

1. ON PRACTICAL MEDICINE AND MEDICAL LITERATURE

Sam'l O. L. Potter	San Francisco,	California
Geo. W. Westlake	Red Bluff,	"
David Powell	Marysville,	"
E. S. Meade	San Jose,	"
Alfred H. Woodill	Riverside,	"

2. ON SURGERY

W. E. Taylor	San Francisco,	California
B. F. Clark	Chico,	"
Alden M. Gardner	Calistoga,	"
Samuel W. Dennis	San Francisco,	"
Wm. T. Lucas	Santa Maria,	"

3. ON OBSTETRICS

Walter Lindley	Los Angeles,	California
Wallace A. Briggs	Sacramento,	"
M. A. Cachot	San Francisco,	"
F. Walton Todd	Stockton,	"
Mary W. Moody	San Francisco,	"

4. MEDICAL TOPOGRAPHY, METEOROLOGY, ENDEMICS AND EPIDEMICS

J. B. Trembley	Oakland,	California
Lawrence M. Agard	Auburn,	"
John W. Robertson	Napa,	"
C. M. Fenn	San Diego,	"
John Fife	Red Bluff,	"

5.—INDIGENOUS BOTANY AND DOMESTIC ADULTERATION OF DRUGS

W. P. Gibbons	Alameda,	California
H. J. Crumpton	Saucelito,	"
R. G. Reynolds	Upper Lake,	"
T. J. Jenkins	Oroville,	"
C. B. Bates	Santa Barbara,	"

6.—PUBLIC HYGIENE AND STATE MEDICINE

Washington Ayer	San Francisco,	California
G. G. Tyrrell	Sacramento,	"
H. S. Orme	Los Angeles,	"
Jas. Simpson	San Francisco,	"
J. G. Jewell	" "	"

7.—HISTOLOGY AND MICROSCOPY

Julius Rosenstirn	San Francisco,	California
Albert Abrams	" "	"
C. M. Richter	" "	"
D. W. Montgomery	" "	"
J. H. Stallard	" "	"

8.—MENTAL DISEASES AND MEDICAL JURISPRUDENCE

W. W. Macfarlane	Agnew	California
N. S. Giberson	Paso Robles,	"
W. H. Mays	Stockton,	"
F. W. Hatch	Napa,	"
Robt. K. Reid	Stockton,	"

9.—MEDICAL EDUCATION

Jos. P. Widney	Los Angeles,	"
W. S. Whitwell	San Francisco,	"
Wm. B. Lewitt	" "	"
A. J. Pedlar	Fresno,	"
Charlotte B. Brown	San Francisco,	"

10.—PUBLICATION

Henry Gibbons, Jr.	San Francisco,	California
Wallace A. Briggs	Sacramento,	"
C. G. Kenyon	San Francisco,	"
G. F. G. Morgan	"	"
A. P. Whittell	"	"

11.—ARRANGEMENTS

C. G. Kenyon	San Francisco,	California
Chas. E. Farnum	"	"
Walter E. Bates	"	"
Geo. W. Davis	"	"
Jerome A. Anderson	"	"

12.—PRIZE ESSAY

M. M. Chipman	San Francisco,	California
Jos. O. Hirschfelder	"	"
F. R. Kane	"	"
Martin Regensburger	"	"
E. J. Overend	Oakland	"

13.—GYNECOLOGY

C. Cushing	San Francisco,	California
John Wagner	" "	"
John A. Miller	" "	"
Lucy M. F. Wanzer	" "	"
Elizabeth A. Follansbee	Los Angeles,	"

14. DISEASES OF WOMEN AND CHILDREN

Ira E. Oatman (women)	Sacramento,	California
H. M. Sherman (children)	San Francisco,	"
J. P. Le Fevre	" "	"
Agnes Lowry	" "	"
Jos. H. Wythe	Oakland,	"

15. OPTHALMOLOGY, OTOLOGY, LARYNGOLOGY AND RHINOSCOPY

Geo. C. Pardee	San Francisco,	California
Henry Ferrer	" "	"
Elizabeth R. C. Sargent	" "	"
N. J. Martinache	" "	"
J. D. Arnold	" "	"

16.—NECROLOGY

Albert H. Pratt	Oakland,	California
W. L. Wills	Los Angeles,	"
J. R. Laine	Sacramento,	"
W. H. Wallace	Eureka,	"
H. D. Robertson	Yreka,	"

17.—MEDICAL LEGISLATION

Chas. E. Blake	San Francisco	California
Wm. M. Lawlor	"	"
Chas. H. Steele	"	"
W. F. McNutt	"	"
W. D. McCarthy	"	"

18.—GRADUATING EXERCISES

O. O. Burgess	San Francisco,	California
R. W. Murphy	"	"
John E. Kunkler	"	"
H. H. Gardner	"	"
Geo. J. Bucknall	"	"

SPECIAL COMMITTEE ON BUILDING

Wm. F. McNutt	San Francisco,	California
Luke Robinson	"	"
Jas. Simpson	"	"
Robt. A. McLean	"	"
H. S. Orme	Los Angeles,	"
W. R. Cluness	Sacramento,	"
Washington Ayer	San Francisco,	"
Henry Gibbons, Jr	"	"
R. Beverly Cole	"	"
Benj. R. Swan	"	"
T. H. Pinkerton	Oakland,	"
Wm. P. Gibbons	Alameda,	"
W. S Thorne	San Jose.	"

SPECIAL COMMITTEE ON ORGANIZATION OF COUNTY AND DISTRICT SOCIETIES

Wm. M. Lawlor	San Francisco,	California
W. D. Anderson	Vallejo,	"
Charles Anderson	Santa Barbara,	"
W. J. G. Dawson	St. Helena,	"
Bird S. Young	Santa Rosa.	"

ACTIVE MEMBERS.

Abrams, Albert	112 Mason St.,	San Francisco
Adams, Henry F	Colton,	California
Adams, John S	12th & Broadway,	Oakland
Agard, Aurelius H	12th & Broadway,	"
Agard, Lawrence M	Auburn,	California
Ainsworth, Frank K	Riverside,	"
Akerly, James C. S	435 4th street,	San Francisco
Alexander, G. E	San Ramon,	California
Allen, Cyrus H	Centerville,	"
Anderson, Charles	Santa Barbara,	"
Anderson, Jerome A	4 O. F. Building,	S. F.
Anderson, Winslow	829 Broadway St.,	"
Anderson, W. D	Vallejo,	California
Anthony, Albert G	Willow & 7th Sts.,	Oakland
Armistead, Howell V	Hill's Ferry,	California
Armstrong, Robert	Coronado Beach,	"
Arnold, Jacob D	229 Geary street,	S. F.
Ayer, Washington	410 Kearny street,	"
Baker, J. E. S	Angels' Camp,	California
Baldwin, Amos E	San Mateo,	"
Baldwin, Robert O	Oakland,	"
Barkan, Adolph	14 Dupont St.,	San Francisco
Bates, Charles B	Santa Barbara,	California
Bates, Cicero M	Highland Springs,	"
Bates, Walter E	122 Geary street,	S. F.
Baumeister, B. H	3238½ Mission street,	"
Bazan, F. Z	415 Sutter street,	"
Beasom, Abbie E	303 Turk street,	"
Belinge, F. A. A	1901 Polk street,	"
Bellamy, B. C	Livermore,	California
Bettencourt, J. de S		S. F.

Blake, Charles E.....200 Stockton street, S. F.
Blake, James W.....1844 Geary street, "
Boscow, Charles S.....Lincoln, California
Boushey, Julius.....1303 Mission street, S. F.
Boyd, Samuel G.....715 Clay street, "
Briggs, Wallace A.....Sacramento, California
Briggs, William E.....Sacramento, "
Bromley, R. Innis.....Dixon, "
Brown, Charlotte B.....427 Geary street, S. F.
Brown, Jacob N.....San Jose, California
Buckel, C. Annette.....952 14th street, Oakland
Buckley, C. F.....715 Larkin street, S. F.
Bucknall, Geo. J.....301 Sutter street, "
Burchard, L. S.....12th & Broadway, Oakland
Burgess, Oscar O.....329 Geary street, S. F.
Cachot, M. A.....207 Taylor street, "
Caldwell, Robert.....San Jose, California
Callandreau, J.....1307 Stockton St., S. F.
Chase, Albert.....652 Market street, "
Chesley, Charles P.....754 Howard street, "
Chipman, Marshall M.....404 Turk street, "
Chismore, George.....920 Market street, "
Clark, Asa.....Stockton, California
Clark, Jonas.....Woodland, "
Clark, William D.....Cottonwood, "
Clinton, Charles A.....30 Phelan Building, S. F.
Cluness, W. R.....Sacramento, California
Coffman, N. B.....Healdsburg, "
Colby, Frank A.....Lancaster, New Hampshire
Cole, R. Beverly.....218 Post street, S. F.
Collins, Addison C.....Davisville, California
Connolly, Thos. E.....91, 9th street, San Francisco
Cowan, Charles S.....Fort Jonas, California
Craig, Thornton.....Capay, "
Crossman, Lyman C.....Brown's Valley "
Crowder, Henry C.....Williams, "
Crowley, Dennis D.....1103½ Broadway St., Oakland

Crumpton, H. John	Sancelito,	California
Curless, William	Truckee,	"
Cushing, Clinton	636 Sutter street,	S. F.
D'Ancona, A. A.	1408 Howard street,	"
Davis, Charles A	Santa Rosa,	California
Davis, Geo. W	433 Geary street,	S. F.
Dawson, W. J. G	St. Helena,	California
Delmont, Francis	813 Jackson street,	S. F.
Dennis, Samuel W	530 Sutter street,	"
De Puy, Anson A	Linkville,	Oregon
De Vecchi, Paolo	700 Broadway St.,	S. F.
De Witt, T. Byron	Cor. Butte & Ken. St.,	"
Dillon, John F	Black's,	California
Dodge, Henry W	217 Geary St.,	San Francisco
Dozier, Barton	Los Angeles,	California
Dozier, L. Franklin	Napa,	"
Dozier, William E	Jackson,	"
Dransfeld, Charles C	Santa Maria,	"
Dryer, John L	Placerville,	"
Du Bois, Amos S	San Leandro,	"
Eastman, Joseph S	East Berkeley,	California
Eidenmüller, W. C	1347 Powell St.,	S. F.
Ellinwood, Charles N	715 Clay street,	"
Evans, C. W	Modesto,	California
Farnum, Charles E	672 Mission street,	S. F.
Fenn, Charles M	San Diego,	California
Ferrer, Henry	16 Geary street,	S. F.
Field, Edna R	422 Geary street,	"
Fife, John	Red Bluff,	California
Fifield, Ella J	Petaluma,	"
Fifield, W. E	Petaluma,	"
Finnie, Walter E	Crockett,	"
Firth, Christopher C	Merced,	"
Fiske, Henry M	24 Phelan Building,	S. F.
Fitch, Geo. L	32 O'Farrell street,	"
Fitzgibbon, Gerald J	860 Mission street,	"
Flood, Philip H	6 Eddy street,	"

Follansbee, Elizabeth A....	Los Angeles,	California
Foote, Erastus N.....	Lockford,	"
Foulkes, James F.....	969 Broadway St.,	Oakland
Foulkes, John F.....	217 Geary street,	S. F.
France, John K.....	Oakland,	California
Freeman, Mary E.....	Woodland,	"
Frisbie, Edward G.....	2135 Bush street,	S. F.
Frost, James.....	1, 5th street,	"
Gallwey, John.....	659 Clay street,	"
Gardner, Alden M.....	Calistoga,	California
Gardner, Henry H.....	6 Eddy street,	San Francisco
Garwood, William T.....	514 Kearny street,	"
Gerlach, George.....	1313 Golden Gate Ave.	"
Gibbons, Clifford H.....	Arbuckle,	California
Gibbons, Henry, Jr.....	920 Polk street,	S. F.
Gibbons, William P.....	Alameda,	California
Giberson, Nelson S.....	Paso Robles,	"
Ginnasi, Francis.....	105 N. 8th St.,	St. Louis, Mo.
Gober, Robt. E. P.....	Los Gatos,	California
Graves, Geo. W.....	Petaluma,	"
Gray, Edward.....	Benicia,	"
Gray, John F. S.....	San Diego,	"
Gregory, Caldwin L.....	Yreka,	"
Grover, William A.....	Berkeley,	"
Gydison, May C. E.....	Salinas,	"
Hagan, Martin.....	Los Angeles,	"
Hall, J. U.....	San Jose,	"
Hamlin, N. S.....	Marysville,	"
Hammond, William H....	San Jose,	"
Harris, E. B.....	2336 Mission	S. F.
Hart, Henry H.....	939 Howard street,	"
Hartley, John D.....	150 Fourth street,	"
Harvey, Obed.....	Galt,	California
Hatch, Fred W.....	Napa,	"
Healy, John H.....	850 Market street,	S. F.
Hertel, C. A. E.....	Gonzales,	California
Hirschfelder, Jos. O.....	429 Geary street,	S. F.

Hodgdon, W. H. A.....225 Geary street, S. F.
Hopkins, St. George L....Fresno, California
Howard, Kate I.....1228 Market street, S. F.
Howard, S. D.....1018 Washington St., "
Hunt, R. M.....Nevada City, California
Huntington, Thomas W....C. P. R. R. Hospital, Sacramento
Jackson, Geo. H.....Woodland, California
Jenkins, T. J.....Oroville, "
Jewell, James G.....2000 Stockton St., S. F.
Johnson, J. H..... New York
Johnson, J. Thad.....Atlanta, Georgia
Johnston, William D.....510 Kearny street, S. F.
Jones, William C.....Grass Valley, California
Jones, William F.....San Rafael, "
Joy, Blanche.....912 Sutter street, S. F.
Kahn, Samuel S.....14 Dupont street, "
Kane, Francis B.....46 O'Farrell St., "
Kearney, Peter A.....501 Folsom street, "
Keeney, James W.....14 Dupont street, "
Kenyon, Curtis G.....664 Mission street, "
Kerr, Wm. Watt.....522 Sutter street, "
Kier, Henry M.....Woodland, California
King, E. W.....Ukiah, "
Kirkpatrick, C. A.....920 Market street, S. F.
Knight, Benjamin.....Santa Cruz, California
Knowles, Samuel E.....118 Dupont street, S. F.
Kunkler, John E.....514 Kearny street, "
La Brie, Godefroi.....1030 Mission street, "
Laine, J. R.....Sacramento, California
Lane, Levi C.....652 Mission street, S. F.
Lawlor, William M.....326 Geary street, "
Lee, George P.....Merced, California
LeFevre, J. P.....14 Dupont street, S. F.
Legler, Henry T.....12th & Broadway Sts. Oakland
Lengfeld, A. L.....200 Stockton street, S. F.
LeTourneux, T. J.....22 Geary street, "
Lewitt, William B.....605 Laguna street, "

Lindley, Walter.....237 S. Spring St., Los Angeles
Lindley, Will. E.....237 S. Spring St., "
Long, Seeley F.....14 Dupont street, S. F.
Lonigo, Emil V.....1425½ Dupont street, "
Lovelace, Arthur S.....200 Stockton street, "
Lovelace, L. M.....Lemore, California
Lowry, Agnes.....607 Sutter street, S. F.
Lowry, Isabel.....607 Sutter street, "
Lucas, William T.....Santa Maria, California
Luce, Douglass.....Banta, "
Lusson, Pedro M.....San Jose, "
Lynch, W. F.....Walnut Creek, "
Macfarlane, W. W.....Agnew, California
Magill, Mary J.....Sacramento, "
Magill, Zachary T.....Nicolaus, "
Markell, Richard S.....Cloverdale, "
Martinache, N. J.....5½ Kearny St., San Francisco
Mayon, James L.....Sutter Creek, California
Mays, W. H.....Stockton, "
McAllister, W. F.....502 Washington St., S. F.
McCarthy, W. D.....874 Mission street, "
McCurdy, Samuel.....Azusa, California
McDonald, Jonathan T....308 Fifth street, S. F.
McLaughlin, M. A.....R. R. & 12th Ave., S. S. F.
McLean, J. T.....Alameda, California
McLean, Robert A.....603 Merchant street, S. F.
McNutt, William F.....121 Montgomery St., "
McSwegan, Daniel.....San Diego, California
Meade, E. S.....San Jose, "
Meares, John L.....New City Hall, San Francisco
Merrill, E. Roscoe.....Sacramento, California
Meyers, Robert C.....Union & Powell Sts., S. F.
Miller, Charles F.....Hill's Ferry, California
Miller, John A.....1018 Valencia St., S. F.
Montgomery, Douglass W.600 Sutter street, "
Montgomery, John.....428 Sutter street, "
Moody, Mary W.....944 Valencia street, "

Morgan, G. F. G.....Union & Laguna Sts., S. F.
Morse, John F.....200 Stockton street, "
Mott, Henry V.....Brentwood, California
Murphy, James.....659 Clay street, S. F.
Murphy, Robert W.....1601 Gough street, "
Neal, Harrison.....San Miguel, California
Newmark, Valentine.....Benicia, "
Nichols, George B.....San Luis Obispo, "
Nixon, Alexander B.....Sacramento, "
Nutting, Charles W.....Etna Mills, "
Oatman, Ira E.....Sacramento, "
O'Brien, Edward S.....Merced, "
Ollino, G.....700 Broadway St., S. F.
Orme, Henry S.....120 N. Main St., Los Angeles
O'Toole, M. C.....6 Eddy street, S. F.
Overend, Edmund J.....856 Jefferson St., Oakland
Pardee, E. H.....Oakland, California
Pardee, George C.....526 Montgomery St., S. F.
Parkinson, James H.....429½ J street, Sacramento
Parson, Edward.....103 Montgomery St., S. F.
Partsch, Herman.....Parkfield, California
Paton, Charles J.....St. Luke's Hospital, S. F.
Patten, Mark F.....San Buenaventura, Cal.
Patty, Levi H.....Petaluma, "
Pawlicki, L. B. S.....700 Sutter street, S. F.
Payne, Frank H.....East Berkeley, California
Pedlar, Alfred J.....Fresno, "
Pfeninger, John.....Anaheim, "
Phillips, Thomas.....Stockton, "
Pinkerton, Thomas H.....1155 Broadway St., Oakland
Plummer, R. H.....652 Mission street, S. F.
Pond, Henry M.....St. Helena, California
Potter, Sam'l O. L.....Sutter & Hyde Sts., S. F.
Powell, David.....Marysville, California
Powers, George H.....215 Geary street, S. F.
Pratt, Albert H.....12th & B'dway Sts., Oakland
Pratt, William F.....San Jose, California

Pritchard, Maurice	Sierra Valley,	California
Rabe, B. A	Oakland,	"
Rattan, Frank	Encenitos,	"
Regensberger, Martin	114 Geary street,	S. F.
Reid, Robert K	Stockton,	California
Renebome, John H	18 St. Ann's B'ld'g,	S. F.
Reynolds, George P	Alameda,	California
Reynolds, R. G	Upper Lake,	"
Richmond, G. B., Jr	Salinas,	"
Richter, C. Max	723 Sutter street,	S. F.
Rivas, Isaac	1256 California street,	"
Robe, William E	Maxwell,	California
Robertson, E. B	Jackson,	"
Robertson, Henry D	Yreka,	"
Robertson, John W	Napa,	"
Robinson, Luke	217 Geary street	S. F.
Rodgers, Lee O	920 Market street,	"
Rogers, Charles A	Bakersfield,	California
Rogers, Nathan	703 Market street,	S. F.
Rooney, Robert F	Auburn,	California
Rosenstirn, Julius	Sutter & Hyde Sts.,	S. F.
Ross, Thomas	Woodland,	California
Rowell, Chester	Fresno,	"
Rucker, Hiram N	Merced,	"
Rugg, Sumner P	118½ Fulton street,	S. F.
Sargent, Elizabeth R. C	607 Sutter street,	S. F.
Sargent, Jacob L	Woodbridge,	California
Sawyer, Herbert C	7 Hill street,	San Francisco
Saxe, A. W	Santa Clara,	California
Saxe, Frank K	San Jose,	"
Scholl, Albert L	19th & Mission Sts.,	S. F.
Seifert, George W	San Jose,	California
Serviss, Thomas W	Oroville,	"
Sherman, Harry M	920 Market street,	S. F.
Shuey, Sarah I	East Berkeley,	California
Shurtleff, Benjamin	Napa,	"
Shurtleff, George A	Napa,	"

Simmons, Gustavus C.....Sacramento, California
Simmons, G. L.....Sacramento, "
Simmons, Samuel S.....Alameda, "
Simon, Jules A.....323 Geary street, S. F.
Simonton, W. B.....Oakland, California
Simpson, James.....234 Post street, S. F.
Slater, Thomas.....Alameda, California
Smith, Andrew C.....Plymouth, "
Smith, H. Watson.....Placerville, "
Smith, Robert P., Jr.....Santa Rosa, "
Smith, William G.....Sturges, D. T.
Snider, Thornton A.....Sacramento, California
Sobey, Arthur L.....2145 Mission St., S. F.
Soper, Joseph H.....1001 Market St., "
Southard, William F.....1155 Broadway St., Oakland
Sponogle, Frank M.....Healdsburg, California
Sponogle, J. Dorsey,.....317 Stockton St., S. F.
Stallard, J. H.....632 Sutter street, "
Stansbury, Oscar.....Chico, California
Steele, Charles H.....2322 Mission S. F.
Stitt, James W.....Vacaville, California
Stone, J. S.....Healdsburg, "
Stuart, Anabel McG.....Santa Rosa, "
Sullivan, James F.....1105 Van Ness Ave., S. F.
Sundberg, John C.....121 Montgomery St., "
Swan, Benjamin R.....310 Stockton street, "
Sweetland, William P.....397 Hayes street, "
Taylor, William E.....215 Geary street, "
Taylor, William S.....Livermore, California
Thayer, Orson V.....218 Post street, San Francisco
Thorne, Walter S.....San Jose, California
Todd, F. Walton.....Stockton, "
Todd, T. M.....Auburn, "
Trembley, J. B.....952 Eighth street, Oakland
Tully, John J.....Sierra City, California
Tyrrell, Gerrard G.....Sacramento, "
Van Orden, Kate P.....14 Dupont St., San Francisco

Vallejo, Platon	Vallejo,	California
Vaux, E. P	Santa Cruz,	"
Verrinder, Arthur E	37 Post St.,	San Francisco
Verrinder, Robert F	37 Post street,	"
Voeller, Herman	Sacramento,	California
Wadsworth, C. C	606 Sutter St.,	San Francisco
Wagner, John	2025 Mission street,	"
Wallace, W. H	Eureka,	California
Wanzer, Lucy M. F	205 Taylor street,	S. F.
Watts, Nelson,	Chico,	California
Wefelsburg, A. B. von	823 Mission street,	S. F.
Welch, Henry S	Nevada City,	California
Welch, Joseph P	Millville,	"
Wells, William H	Dixon,	"
West, J. M	Red Bluff,	"
Westlake, George W	Red Bluff,	"
Wheeler, Peter	1155 Broadway,	Oakland
White, Franklin J	San Rafael,	California
Whittell, A. P	906 Market street,	S. F.
Whitwell, William S	620 Folsom street,	"
Widney, Joseph P	Widney Block,	Los Angeles
Wilkins, E. T	Napa City,	California
Williams, Nathaniel	Richland,	"
Williamson, J. M	664 Haight street,	S. F.
Wills, W. Le Moyne	Widney Block,	Los Angeles
Winton, Henry N	Haywards,	California
Woodill, Alfred H	Riverside,	"
Woods, W. E. Josephine	1529 California St.,	S. F.
Woolsey, Elliott H	12th & Broadway,	Oakland
Worthington, Henry	265 N. Main St.,	Los Angeles
Wythe, Joseph H	965 West street,	Oakland
Young, Bird S	Santa Rosa,	California
Young, Junius D	Stockton,	"
Younger, William J	300 Stockton street,	S. F.

HONORARY MEMBERS.

Ames, A.....Boston, Mass.
Baily, Elisha I.....Col. U. S. A., Phelan B'd, S. F., Cal.
Baily, Joseph C.....L't Col. U. S. A. Ft. Monroe, Va
Bentley, Edwin.....Maj. U. S. A., Little Rock, Arkansas
Billings, John S.....Maj. U. S. A., Washington, D. C.
Bishop, Charles B....San Francisco, California
Blake, Charles M.....427 Geary St., San Francisco, "
Blake James.....London, England
Cameron, Charles A..Dublin, Ireland
Cochran, John J.....U. S. A., Presidio, S. F., Cal.
Farwell, W. G.....U. S. A., Detroit, Mich.
Gihon, Albert L.....U. S. Naval Hospital, Mare Isl., Cal.
Hyrtel, Joseph.....Vienna, Austria
Kindleberger, David..U. S. N. Hospital, Washington, D. C.
Lansdale, P.....U. S. N., Philadelphia, Penn.
LeCout, John.....Berkeley, California
LeCout, Joseph.....Berkeley, California
Murray, R.....(retired), United States Army
Nickerson, W. M.....U. S. N., Baltimore, Md.
Shaw, S. F..... United States Navy
Sternberg G. M.....Maj. U. S. A., Washington, D. C.
Stout, Arthur B.....729 Montgomery Street, S. F., Cal.
Sutherland, Charles..U. S. A., Governor's Island, N. Y.
Taylor, Edward R....San Francisco, California
Terrill, F. H.....San Francisco, California
Thayer, S. W..... Vermont
Tibbitts, Steven, M...San Francisco, California
Virchow, Rudolph....Berlin, Prussia

UNIV. OF MICH.
JAN 8 1900

TRANSACTIONS

OF THE

Medical Society

OF THE

State of California

SESSION OF 1888

SAN FRANCISCO
THE BANCROFT COMPANY, PRINTERS
49 FIRST STREET
1888

610.5
M

TRANSACTIONS

OF THE

Medical Society

OF THE

State of California

SESSION OF 1888

SAN FRANCISCO
THE BANCROFT COMPANY, Printers
49 FIRST STREET
1888

REPORT

OF THE

COMMITTEE ON PUBLICATION

Mr. President, and Members of the Medical Society of the State of California:

We submit the Volume of Transactions for the year 1888.

Your committee solicited bids for the printing and binding of this Volume from the following named firms: Messrs. Crocker & Co., Shannon & Eastman, Hughes, Bacon & Co., Woodword, Streeter, Siguerre Bros., Murdock and the Bancroft Printing Co. and the last named firm tendering the lowest bid, it was accepted and the following agreement entered into:

AGREEMENT: The Bancroft Printing Co., of San Francisco, Cal., Party of the First Part, and G. F. G. Morgan, (Chairman of the Committee on Publication, of the Medical Society of the State of California,) Party of the Second Part, do hereby agree and severally bind themselves as follows:

a. The party of the First Part, to supply paper, print, bind and deliver to the Party of the Second Part, on or before June 15, 1888. Five Hundred (500) copies of the Transactions of the Medical Society of the State of California, for the year 1888.

b. Such volume shall be printed in Long Primer type, single leaded and of an average of 1500 ems to each page: and shall be on fine laid or wove book paper; the whole to be *at least equal* in quality to the issue of 1886.

c. That the price to be paid to the party of the First Part by the Party of the Second Part, upon satisfactory completion and delivery of the work, shall be at the rate of One Dollar ($1) and ten (10c) cents, each page of printed matter, as above set forth.

d. In the case of Tabular matter, the extra charge for such shall be in proportional increase for the kind of type used in such tables, the contract page-price to be the basis of charge.

e. If any reprint be ordered while the type is in form, the charge for such reprint shall be only for paper, printing, cover and binding and any necessary rearrangement of matter.

In consideration of the faithful performance of the foregoing by the Party of the First Part, the Party of the Second Part (for and on behalf of the Medical Society of the State of California) binds himself to pay to the Party of the First Part at the rate of One Dollar, ($1) and ten (10c) cents per page of the above mentioned Volume of Transactions; and such extra charges for Tabular matter as shall be in accord with the above mentioned specifications.

SIGNED, MAY 3, 1888

THE BANCROFT COMPANY, per Pariser

G. F. G. MORGAN

By the suggestion of the retiring President, Dr. Plummer, your committee obtained permission from Dr. Parkinson, of "The Sacramento Medical Times," to print the "Discussion" on papers, as prepared by special reporter for the "Times" The Committee hereby thanks Dr. Parkinson for his kindness and courtesy; and feels that the Society owes it to itself also to recognize this act of "The Times," through Dr. Parkinson.

Correspondence concerning articles, reports, reprints, etc., throw much work upon this Committee that might be obviated and at the same time result in general satisfaction and less expense and labor than at present.

We respectfully suggest that:—All reports or papers to be published in the transactions should be handed in to the Sec'y *on or before the last day of each annual session of the Society.*

Reports or papers should be so clearly and distinctly written, that the Committee on Publication itself, may correct proof and thus obviate the correspondence, expense, labor and delay now unavoidable.

In accordance with our constitution, papers or reports are expected to treat only of matters of original research and the progress of medical science during the current year; and in as much as the rapidly increasing size of our volume of transactions demand it, your committee urge upon members who prepare such papers or reports the advisability of keeping such contributions within a reasonable limit.

A generous emulation in the embodiment of the above mentioned suggestions cannot fail to benefit the society.

Respectfully submitted

G. F. G. MORGAN, Chairman
WM. WATT KERR
CHAS. C. WADSWORTH
HARRY M. SHERMAN
C. G. KENYON

San Francisco, Cal., July 10, 1888

TABLE OF CONTENTS

	Pages
Report of the Committee on Publication	3– 4
Minutes of the Eighteenth Annual Meeting	5– 19
Address of Welcome by Com. on Arrangements	20– 1
Annual Address by the President	22– 36
Report of Committee on Mental Diseases, Etc	37– 41
Sup. Report of Committee on Mental Diseases, Etc	41– 50
Report of Committee on Practical Medicine, Etc	50–100
Sup. Report of Committee on Practical Medicine, Etc	100–106
Report of Committee on Gynecology	106–113
Report of Committee on Surgery	113–125
Sup. Report of Committee on Surgery	126–143
Report of Committee on Histology, Etc	144–148
Report of Committee on Medical Topography, Etc	148–154
Sup. Report of Committee on Medical Topography, Etc	155–158
Report of Committee on Public Hygiene, Etc	159–184
Aspiration in Synovitis of Knee-Joint, by E. H. Woolsey, M. D	185–205
Report Sp. Committee on Organization of Co. Societies	205–208
Report Committee on Diseases of Women and Children	208–216
Report Committee on Diseases of Children	216–228
Report Committee on Ophthalmology, Etc	229–249
Report Committee on Graduating Exercises	249–251
Report Committee on Obstetrics	252–258
Sup. Report of Committee on Obstetrics	259–263
Report of Committee on Medical Education	263–271
Report of Committee on Indigenous Botany, Etc	272–280
Report of Board of Examiners	280–282
Report of Committee on Medical Legislation	282–291
Report of Committee on Prize Essay	291–292
Report of Committee on Rush Monument Fund	293–297
Report of Committee on Necrology	297–299
Sup. Report on Necrology	299–301
Constitution and By-Laws	302–309
Order of Business	310
Resolutions Relating to the Government of the Society	311–313
Proposed New Constitution and By-Laws	314–325
Officers and Standing Committees for 1888–9	326–328
Active Members	329–337
Honorary Members	337

MINUTES

OF THE

EIGHTEENTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA

ERRATA.

Page 7, lines 26, 30, should be Transactions.
Page 9, line 36, should be require.
Page 9, line 39, should be therefor.
Page 15, line 31, should be aspiration, synovitis.
Page 198, line 38, should be synovitis.
Page 201, line 10, should be site.
Page 244, line 12, should be cautery.

session, the society adjourned until 2 P. M.

Afternoon Session, April 18.

Committee on revision of By-Laws were appointed as follows:—C. E. Blake, W. W. Kerr, S. O. L. Potter, H. S. Orme and J. H. Parkinson.

The board of censors made their report and recommended

Report of Committee on Histology and Microscopy was read by Dr. Julius Rosenstirn of San Francisco and referred to Committee on Publication. Exhibition upon the screen by Dr. Rosenstirn.

It was moved by Dr. Morgan that a vote of thanks be extended to Dr. Runyon for exhibition in Microscopy.

Dr. H. Ferrer exhibited some sections of the eye and described his method for making drawings of the same.

Minutes of the session read and approved.

Adjourned.

Morning Session, April 19.

Dr. C. G. Kenyon, Chairman of Committee of Arrangements, reported visitors and new members present.

Report of Board of Censors by Dr. C. G. Kenyon, recommending the following named candidates for membership:

M. M. Shearer, Santa Rosa; W. E. Mack, Paradise, Butte Co.; G. Walther Otto, Emma S. Merritt, Beverly McMonagle, San Francisco; A. Anderson, Monterey; Jno. Larkin, West Berkeley; J. E. Pearson, Walnut Creek; Lewis Carpenter, Lakeport; E. A. Crepin, Hollister; S. B. P. Knox, Santa Barbara; Thos. Norton, San Luis Obispo; Wm. Harris Cook, Bakersfield; Jennie Tower Leonard, Merced; A. J. Hart, Modesto; A. F. Darling, Los Angeles; Jas. P. Booth, Needles.

The report of the Board of Censors was accepted and the candidates were elected members of the society, as recommended.

The president read an invitation from Redington & Co., inviting the members of the society to visit their laboratory.

Report of Committee on Diseases of Women and Children, was read by the chairman, Ira E. Oatman, of Sacramento, and referred to Committee on Publication, with the privilege that Dr. Oatman might add a supplemental report if delivered to the committee within two weeks.

On motion the discussion of this paper was postponed until the arrival of Dr. Saxe, who had been appointed to open the discussion.

On motion of Dr. Gibbons, Dr. Noves was invited to a seat

in the convention, with the privilege of taking part in the discussions.

The report of the Committee on Medical Typography, Meteorology, Endemics and Epidemics, was received from the chairman, J. B. Trembly, of Oakland, the doctor on account of sickness being unable to be present.

On motion of Dr. G. W. Davis, the report of Dr. Trembly was referred to the Committee on Publication, and the sympathy of the society extended to him.

Report of the Committee on Public Hygiene and State Medicine was read by the chairman, Washington Ayer, of San Francisco, and referred to the Committee on Publication.

The following resolution was offered by Prof. Lindley, of Los Angeles.

Resolved, That this society especially indorse that portion of Dr. Ayer's paper referring to expert testimony, and that it be referred to the Committee on Medical Legislation with the request that they take active steps to have it incorporated in the laws of this state.

Resolution passed.

Dr. Jas. Simpson moved that the chairman of the Committee on Publication, be instructed to have one thousand copies of Dr. Ayer's paper reprinted from the transactions of the society for the purpose of distributing them among the members of the legislature and other interested parties.

The motion was carried.

It was moved by Dr. Tyrrell that the discussion on the publication of the society proceedings be made a special order of business for 2 P. M. to-day.

A letter from W. Le Moyne Wills, Los Angeles, regretting his inability to be present on account of a severe injury, was read to the society.

Afternoon Session, April 19.

The subject of the publication of the proceedings of the State Medical Society was taken up.

G. F. G. Morgan offered the following resolution:

Resolved, That the best interests of the society requires that itself should print and publish its transactions, and that these should be issued in volume form similar to those of the last annual meeting: therefore the Committee on Publication is

Repor
by Dr.
Committ
Dr. Ros
It was
extended
Dr. H.
described
Minutes
Adjour

Dr. C.
ments, re
Report
mending t
M. M. S
Co.; G. W
San Fran
Berkeley;
Lakeport;
Barbara;
Bakersfield
Modesto;
The rep
candidates
mended.
The pr
inviting th
Report o
was read by
referred to
Dr. Oatm
the comm
On mo

... Society

... and publish the
...

... service, was introduced
...

... Follansbee regretting
... the Society.

... sibility of the Insane by
... to be present was referred
...

... organization of County and
... chairman, W. M. Lawlor and
... ication.

... asthenia by R. K. Reid was read
... tee on Publication.

... the endorsement of the following
... had been signed by the Mayor of
... Health and representatives of the
... the establishment of a ...

... the society and ...
... Congress

... Congress

... and
... the
... the
... er-
... we
... ed
... ty
... mar-
...

was made to the authorities at Washington; the justice of our cause being such that a commission was appointed to select a suitable site for a quarantine station. After a thorough investigation the United States Commission sent in their report recognizing the immediate necessity of a quarantine station and recommending a certain tract of land for this purpose. Since then nothing has been done in this matter; and although two years ago the State Board of Health presented our grievances, we are yet without redress.

For months past we have been struggling to stamp out an epidemic of smallpox that had gained a dangerous foothold in our city and State, and for as many months we have been receiving continued and repeated additions of new cases brought by every steamer from China and Japan. While it is well known that smallpox is always endemic in those countries, the spread of this disease has latterly reached alarming proportions and shows a very malignant type.

There is every reason to fear that these importations of the dreaded pestilence will continue for an indefinite period, and we urge the passage of the bill to aid us in protecting ourselves from the ravages of this disease.

The present epidemic has been fought with all our power, all our energies and all our means. Still these last were painfully insufficient.

For want of a proper quarantine station the various steamship companies have been compelled to keep ships and steamers in the stream for many weeks. As a temporary expedient, they have converted old vessels into floating quarantine stations, and to them have transferred crowds of passengers from the incoming infected Oriental steamers.

These vessels are utterly unfit for the purpose, and the danger to the inmates may be realized from the fact that one of them was wrecked and sunk a few days ago in a storm, those on board barely escaping with their lives. But smallpox is not the only pestilence threatening our port. Recently, on board a steamer quarantined for a few days only, typhus fever broke out—a disease of a malignant character and most virulently infectious.

Our port is in constant communication with all countries. Ships and steamers are arriving daily; but, to meet the dangers they bring, we have no quarantine station, a safeguard that science and civilization demand. Its erection by the National

hereby instructed and authorized so to print and publish the transactions of the present annual meeting.

The resolution was adopted.

Dr. Sawtelle of the Marine Hospital Service, was introduced and invited to a seat in the convention.

Letters were read from Drs. Powell and Follansbee regretting their inability to attend the meeting of the Society.

The paper on the Criminal Responsibility of the Insane by Dr. N. S. Giberson who was unable to be present was referred to the Committee on Publication.

The report of the Committee on Organization of County and District Societies was read by the chairman, W. M. Lawlor and referred to the Committee on Publication.

Supplemental report on Neurasthenia by R. K. Reid was read by title and referred to Committee on Publication.

Dr. Jas. Simpson moved the endorsement of the following petition to Congress, which had been signed by the Mayor of San Francisco, the Boards of Health and representatives of the public bodies, relating to the establishment of a quarantine station on this coast.

The resolution was adopted by the society and the secretary ordered to telegraph the fact to Congress.

SAN FRANCISCO, March 8th, 1888.

To the Senate and House of Representatives in Congress Assembled:

Your memoralists, embracing the Mayor, the Supervisors, the Board of Health, the Chamber of Congress, the Board of Trade, and the Collector of the Port of San Francisco, represent the intelligent sentiment of the whole people of the city and the State Board of Health; with us concur the chief of the United States West Coast Survey and the Surgeon of the United States Marine Hospital, who united with us in conference. One and all—for ourselves and for our people—we earnestly petition your honorable body that the bill introduced into the Senate by Senator Stanford, and into the House by Representative Morrow, entitled "An Act to establish a Quarantine Station at the Port of San Francisco," may become a law.

This is not our first attempt to draw the attention of the National Government to our helpless condition. Nearly six years ago at the end of a severe epidemic of smallpox an appeal

was made to the authorities at Washington; the justice of our cause being such that a commission was appointed to select a suitable site for a quarantine station. After a thorough investigation the United States Commission sent in their report recognizing the immediate necessity of a quarantine station and recommending a certain tract of land for this purpose. Since then nothing has been done in this matter; and although two years ago the State Board of Health presented our grievances, we are yet without redress.

For months past we have been struggling to stamp out an epidemic of smallpox that had gained a dangerous foothold in our city and State, and for as many months we have been receiving continued and repeated additions of new cases brought by every steamer from China and Japan. While it is well known that smallpox is always endemic in those countries, the spread of this disease has latterly reached alarming proportions and shows a very malignant type.

There is every reason to fear that these importations of the dreaded pestilence will continue for an indefinite period, and we urge the passage of the bill to aid us in protecting ourselves from the ravages of this disease.

The present epidemic has been fought with all our power, all our energies and all our means. Still these last were painfully insufficient.

For want of a proper quarantine station the various steamship companies have been compelled to keep ships and steamers in the stream for many weeks. As a temporary expedient, they have converted old vessels into floating quarantine stations, and to them have transferred crowds of passengers from the incoming infected Oriental steamers.

These vessels are utterly unfit for the purpose, and the danger to the inmates may be realized from the fact that one of them was wrecked and sunk a few days ago in a storm, those on board barely escaping with their lives. But smallpox is not the only pestilence threatening our port. Recently, on board a steamer quarantined for a few days only, typhus fever broke out—a disease of a malignant character and most virulently infectious.

Our port is in constant communication with all countries. Ships and steamers are arriving daily; but, to meet the dangers they bring, we have no quarantine station, a safeguard that science and civilization demand. Its erection by the National

Government, as provided in Senator Stanford's bill, would protect not only our city and State but the people of all the States as well.

We are but the portal through which creep, despite all our precautions, the fatal epidemics imported here, extending slowly but surely along the lines of travel into the heart of the country.

As evidence of this, our State Board of Health possesses information that the smallpox has been conveyed from here to towns in States east of the Rocky Mountains.

The passage of the Quarantine bill is of the most vital importance to the people, not only of this city and State, but of all the various States and Territories, and their Representatives can readily see for themselves the absolute necessity for such action on the part of Congress.

Therefore, your petitioners respectfully urge the passage of said bill:

E. B. Pond, *Mayor of San Francisco.* John S. Hagar, *Collector of the Port.* Jas. Simpson, M. D., R. Beverly Cole, M. D., G. G. Tyrrell, M. D., Sec., *of State Board of Health.* Alfred W. Perry, M. D., W. D. McCarthy, M. D., Chas. A. Clinton, M. D., Julius Rosenstirn, M. D., *Board of Health for San Francisco.* Hugh Curran, Jas. M. McDonald, Colin M. Boyd, Joseph Pescia, M. D., Chas. S. Bush, A. M. Burns, Wm. Hawkins, Albert F. Knorp, Albert Heyer, Wm. P. Lambert, Hermann Joost, Sargent S. Morton, *Supervisors.* D. E. Hayes, Capt. O. Eldridge, Arthur A. Smith, *Committee Chamber of Commerce.* J. P. LeCount, W. H. Peckham, N. P. Cole, *Committee Board of Trade.*

The chairman of Board of Censors made its report and recommended the following candidates for membership:

A. C. Posey, San Francisco; Caleb V. Jones, Mountain View; Geo. P. Thomas, San Leandro; D. A. Hogshead, Klinknerville; J. R. Swisher, Healdsburg.

In accordance with a motion to that effect, the secretary cast a ballot for the foregoing names and they were declared to have been elected to membership in the society.

The committee further reported that the applications of Dr. A. E. Osborn and Dr. Henry Warren Vernon had been returned; the former, because he was not a member of the local society and the latter to obtain endorsement by two members of the society

They recommended that the application of Dr. Van Meter, Red Bluff, should be rejected, also that the application of Dr. L. J. King, Visalia, should be rejected and his membership fee returned.

The report of the committee was accepted.

Dr. C. G. Kenyon, chairman of the Committee on Arrangement, reported the new members and visitors present.

Dr. Lawlor offered the following resolution:

Resolved, That this society cordially endorses the efforts of the State Board of Health in their endeavor to procure a law to forbid the interment or cremation of any human body within this state without having first obtained a permit for the same from some properly constituted officer appointed for that purpose. We also endorse the efforts of the same Board in advocating compulsory vaccination of all children entering the public schools of this State, and also its endeavor to make the law relating to births, marriages and deaths effective.

The resolution was adopted.

Dr. Tyrrell, of Sacramento, submitted the following resolution:

Resolved, That the secretary of this society be requested to communicate with the president of each local society in the State, requesting that said presidents interest themselves in obtaining contributions of $1 from each physician in the State, in aid of the Rush Monument Fund.

The resolution was endorsed by the society.

A paper from Dr. John Fife on the "Climate of Tehama County" with special reference to the benefits of the Coast Range in pulmonary affections was read and referred to the Committee on Publication.

On motion a recess was taken until 3:30 o'clock, at which time the special order of business—election of officers for the ensuing year—was called for by the chair.

Dr. W. A. Briggs tendered his resignation as permanent secretary of this society.

On motion the resignation was accepted.

Dr. Jas. Simpson, of San Francisco, was declared unanimously elected president of this society for the ensuing year.

Dr. Walter Lindley, of Los Angeles, was declared elected first vice-president.

On motion of Dr. Orme, of Los Angeles, the society pro-

ceeded to election of three vice-presidents, second, third and fourth.

Dr. J. G. Dawson, Dr. W. A. Briggs and Dr. J. S. Baker, were nominated for second, third and fourth vice-presidents.

On motion of Dr. Arnold, of San Francisco, the secretary was instructed to cast the ballot for the gentlemen in the order nominated.

Dr. W. J. G. Dawson, Dr. W. A. Briggs and Dr. J. S. Baker, were declared elected second, third and fourth vice-presidents respectively.

On motion of Dr. J. H. Parkinson, Dr. W. W. Kerr was declared unanimously elected permanent secretary.

On motion the secretary was requested to cast the ballot for Harry M. Sherman and Dr. L. M. F. Wanzer, for assistant secretary. Drs. Sherman and Wanzer were declared elected assistant secretaries.

On motion the secretary was instructed to cast the ballot for Dr. G. C. Simmons, Sacramento, as treasurer.

Dr. G. C. Simmons was declared unanimously elected treasurer for the ensuing year.

Election of Board of Censors.

Dr. Jas. Simpson moved that the five names receiving the highest number of votes, should be declared elected.

Dr. Wadsworth, Dr. De Witt and Dr. Whittell withdrew their names leaving only five nominations for the Board of Censors.

On motion the secretary was requested to cast the vote for Drs. J. G. Fitzgibbon, C. C. Valle, S. F. Long, H. W. Dodge and E. W. King, for Board of Censors.

The afore-named gentlemen were declared unanimously elected as the Board of Censors of this society for the ensuing year.

Drs. Blake, Steele, Pratt, Lawlor, Whitwell, Simon, Hart, Kane, De Witt, Farnum, Davis, Le Tourneux, were placed in nomination for Board of Examiners.

On motion the seven names receiving the highest number of votes cast were declared elected Board of Examiners.

Drs. Blake, Plummer, Steele, Pratt, Farnum, and Lawlor, receiving the six highest votes were declared Elected Board of Examiners for the ensuing year.

A motion was made that the society ballot for the other two members of the Board of Examiners.

On motion of G. W. Davis, the election of the remaining two members of the Board of Medical Examiners was postponed until the evening session.

Dr. Valle moved that the selection of a place of meeting be made the special order of business for 11 o'clock on Friday morning.

Second Day, Evening Session.

Report of Committee on Diseases of Children was read by Dr. H. M. Sherman of San Francisco and referred to the Committee on Publication.

Report of Committee on Opthalmology, Otology, Laryngology and Rhinoscopy was read by Dr. Geo. C. Pardee, of San Francisco, and referred to the Committee on Publication.

A supplemental report on operation on the Mastoid was read by H. Ferrer of San Francisco.

When the election of a seventh member of the Board of Medical Examiners was called for Dr. Lawlor proffered his resignation as a member of the Board.

On motion the resignation was accepted.

On motion the secretary was instructed to cast the ballot of the society in favor of Jules Simon and W. S. Whitwell as members of the Board of Medical Examiners.

The secretary having cast the ballot, the chair declared them elected.

Geo. W. Davis, Winslow Anderson and John Williamson were nominated as alternate members of the same Board.

On motion the secretary cast the ballot in favor of the nominees. The chair declared them elected.

Dr. Woolsey, of Oakland, read a paper with special reference to aspiration of the knee joint in cases of Synovitis.

The communication was referred to the Committee on Publication.

The minutes were read and approved.

On motion the society adjourned.

Morning Session, April 20.

Dr. C. G. Kenyon, chairman of the Committee of Arrangement reported the new members and visitors present.

On motion of C. E. Blake the bill presented in the report of the Committee on Medical Legislation was endorsed by the society.

It was moved that the proposed bill be amended so that one half of the fines should go to the informer and the other half to the school fund.

On motion the amendment was left in the hands of the committee on legislation with power to act.

Dr. C. E. Blake, chairman of the special committee on the presidential address, reported that the committee desired to commend the president for his zeal in behalf of the interests of the society and to endorse his recommendations, particularly those relating to preventive medicine. The committee also presented a draught of constitution and by-laws and suggested that the same be referred to the Committee on Publication.

On motion of Dr. G. W. Davis, the report of the committee was accepted and referred to the Committee of Publication.

Report of the Committee on Obstetrics was read by the chairman, Dr. Walter Lindley, of Los Angeles, and was referred to the Committee on Publication.

The special order of business, viz. "The place of holding the next annual meeting" was taken up.

San Diego was nominated by Dr. Valle, of San Diego. San Francisco was nominated by Dr. C. G. Kenyon.

The two nominations were put to the ballot and San Francisco was declared selected as the place of holding the next annual meeting.

On motion of Dr. J. H. Parkinson the further discussion of the report of the Committee on Obstetrics was postponed until the afternoon session.

The report of the Committee on Medical Education was read by the chairman, Dr. Joseph P. Widney, of Los Angeles.

On motion the paper was referred to the Committee on Publication and the discussion of it postponed until the afternoon session.

Minutes were read and approved.

Adjourned.

Afternoon Session, April 20.

The supplemental report on surgery entitled "Electrolysis in the treatment of organic stricture of male urethra" was read

by Alden M. Gardner, Calistoga, and referred to the Committee on Publication.

The report of Committee on Indigenous Botany and Domestic Adulteration of Drugs, was read by W. P. Gibbons, of Alameda, and referred to the Committee on Publication.

The supplemental report on Indigenous Botany read by M. M. Chipman, of San Francisco, was on motion referred to the Committee on Publication.

On motion the paper of E. B. Robertson, of Jackson, was read by title and referred to the Committee on Publication.

On motion the report of Committee on Necrology was read by title and referred to the Committee on Publication.

The report of the Committee on Practical Medicine and Medical Literature was read by the chairman, Dr. Samuel O. L. Potter, San Francisco, and referred to the Committee on Publication.

On motion the treasurer's report was presented and referred to an auditing committee. W. J. G. Dawson, Wm. Watt Kerr and G. W. Davis, were appointed as such auditing committee to report at evening session.

Dr. C. G. Kenyon presented the report of the Board of Censors which recommended the following applicants for membership.

Wm. Dodge, Los Angeles; S. B. Brummet, Lincoln; Geo. Adam, San Francisco; Gilbert Foote, Ione; E. M. Paterson, Oakland.

On motion the report was accepted and the secretary instructed to cast a ballot for the names mentioned; the ballot being favorable, they were declared elected to membership.

By vote of the society, Dr. W. A. Douglass, San Francisco, and Dr. S. R. Gerry, San Francisco, were elected to honorary membership.

Dr. A. B. Stout, expressed his thanks to the society for the honor conferred upon him by his election to honorary membership at the last meeting.

Parkinson moved that the society subscribe for
dex Medicus to be placed in the hand of the

as carried.

on Practical Medicine, by Dr. Geo.

Westlake, was read and referred to the Committee on Publication.

Dr. Jas. Simpson, San Francisco, presented the following resolution:

Resolved, That the President and Secretary of this society are authorized to issue the proper credentials to any member of this society desiring to attend as a delegate, the meeting of the American Medical Association, the British Medical Association, or any other foreign association where such credentials are required.

The resolution was put to the society and adopted.

On motion the dues of the assistant secretaries were remitted by the society.

Report of Committee of Gynecology was read by the chairman, Dr. C. Cushing, San Francisco, and referred to the Committee on Publication.

Minutes read and approved.

Adjourned.

Evening Session, April 20.

Report of Committee on Prize Essay was read by Dr. M. M. Chipman.

Moved the report be received and the recommendation therein concurred in.

The report referred to the Committee on Publication.

On motion the supplemental report of Dr. John A. Miller, on "Phlegmasia Alba Dolens" was read by title and referred to Committee on Publication.

The report of Dr. O. O. Burgess, chairman of the Committee on Graduating Exercises, was read and referred to the Committee on Publication.

On motion of Dr Morgan the recommendations in the report were concurred in by the society.

Dr. Walter Lindley of Los Angeles presented a request from the Dean and Faculty of the Medical College of the University of Southern California desiring that the president of this society should appoint one member of the Committee on Graduating Exercises from Los Angeles.

The supplemental report on Obstetrics entitled "Electricity in Obstetrics" by Dr. Mary W. Moody, San Francisco, was read by title and referred to Committee on Publication.

Dr. McNutt reported that the building committee had not transacted any business as he had not been able to obtain a quorum.

The report was received and the committee discharged.

The committee appointed to audit the treasurer's accounts made the following report:—

Your committee appointed to examine the report of the treasurer would beg leave to report that they have carefully examined the same and find it correct.

They find a balance of $742.75 in favor of the society.

Signed, G. W. DAVIS
WM. WATT KERR
W. J. G. DAWSON

A communication was received from the Yolo County Medical Society stating that Dr. H. M. Kier has been unanimously expelled from that society for unprofessional conduct.

The communication was given into the hands of the secretary to be placed on file.

Dr. G. W. Davis moved that the amendment relative to the formation of a medico-legal board proposed by the late Dr. A. B. Stuart at the last annual meeting be referred to the Committee on Revision of the Constitution and By-Laws.

After a brief address by the retiring president, Dr. H. S. Orme of Los Angeles and Dr. W. P. Gibbons of Alameda were requested to conduct the president-elect to his chair.

On motion of H. S. Orme a vote of thanks was returned to the retiring president and officers for their faithful service.

Minutes read and approved. Afterwards by the request of the society, a paper on the "Experiences of a Country Doctor" was read by Dr. H. J. Crumpton, Saucelito.

Adjourned.

ADDRESS OF WELCOME

By DR. KENYON

Mr. President, Ladies and Gentlemen:—In deference to an established custom, in the official capacity of Chairman of the Committee of Arrangements, I welcome you to the 18th annual meeting of the Medical Society of the State of California. I wish in this simple expression to embody all the word can imply, not only as the sentiment of the Committee but the heartfelt welcome of the resident members, to those who have left home and business in their respective localities throughout the State to participate in the exercises of the session now at hand.

We receive you in the same hall in which you have assembled for a number of successive years. We think these familiar and pleasant surroundings must recall to your minds happy recollections of former sessions, and tend to the gradual strengthening of the ties of friendship and fraternity, the natural result of these annual convocations, and a life work in the common cause of humanity.

We place before you this morning a large and comprehensive programme, laying out in a systematic manner the labor of the year. We have every assurance that the reports of the various sections will be up to the high standard established in this society, and we confidently presage an important and profitable session. Your honorable President has been indefatigable in his labors to that end, and your committee of arrangements whom I have the honor to represent have given him active support.

The auspices under which we meet are most favorable. Throughout our great State prosperity and thrift prevail; at no time since some of our older members crossed the plains to occupy this Golden Shore has so much material progress been made in California, in a single year, as the one just passed; and matters pertaining to our profession are keeping step with the times. Hospitals, Medical Journals, a high standard of medical scholarship, and [illegible]ed and higher standard of ability among medical [illegible]s, patent to the careful

observer, that the work of this society has benefited the whole profession, and the time, energy, and money expended in the work of our annual sessions, have been like bread cast upon the waters.

We call your attention to a feature of the session, new to this coast, the exhibition in the adjoining hall of Surgical Instruments, and appliances, Medical Works, and Pharmaceutical preparations. In the East where exhibits of this kind are made it has been found to serve the good purpose of offering an opportunity to visiting members to familiarize themselves with the latest improvements obtainable in the armamentarium of the practitioner, as well as the latest medical works and Pharmaceutical Agents, without detracting from the interest expected in the regular work of the session.

For several years our sessions have been free from wrangling or acrimonious debate, the time at our command has been judiciously spent in hearing reports, reading of papers, and discussion of the subject matter, hence, in making out the programme laid before you, we have devoted every moment of the time to similar purposes.

And now gentlemen, without trespassing further upon your time, I once more assure you in behalf of the Committee of Arrangements, that they stand as a unit in readiness to aid you in any manner, or perform any and all acts in their power to add to your comfort and well-being while in our city.

ADDRESS DELIVERED AT THE OPENING

OF THE

EIGHTEENTH ANNUAL MEETING

OF THE

Medical Society of the State of California.

By R. H. PLUMMER, M. D., President.

Fellow Members: The acceptance of the honor which you conferred in calling me to the presidential office, carried with it duties and obligations which have occasioned me much anxiety. My manifold labors during the year have so occupied my time that, unlike the skillful mariner, I have scarcely been able to take observations and make my reckonings. It is therefore with some embarrassment that I attempt this morning to render an account of my stewardship; but I realize that I stand in the midst of friends who have been my co-laborers in this Society for eighteen years; and, conscious of the fact that conferring this honor and imposing the duties were the impulses of your own generous hearts, I feel assured that I may reasonably expect your indulgence in whatever measure my efforts fall short of your anticipations.

The physician, in the discharge of his professional duties, frequently displays all the valor exhibited on the field of battle, but his office is to save, not to slaughter; and his training is for the silent chamber wherein reign sorrow, suffering, death ; not for the Forum. "The Genius of Medicine sits pensive and alone, her finger on her lips." As a devotee of medicine, therefore, I expect you to throw the mantle of charity over my deficiency in the art of oratory.

ANCIENT MEDICINE.

The "healing art" is as old as the human family. In the Old Testament we find Job speaking of his counselors as "physicians of no value," [illegible] exclaiming, "Is there

no balm in Gilead?" More than three thousand years ago Homer sang:

> "A wise physician, skilled our wounds to heal,
> Is more than armies to the public weal."

Observations on the clinical history treatment and pathology of diseases were recorded on tablets, in the rude methods of the times. As new truths accumulated, fraternal organizations ensued, and the *esprit de corps* which followed is amply attested by the history of the Druids of ancient Gaul, the Asclepiadæ of Greece, the numerous organizations of the "Middle Ages," and the countless associations and colleges of our own generation devoted to the healing art.

In the present time, when locomotive engineers and railroad brakemen have their "brotherhoods," and the "bakers and candlestick makers" their "unions," it is little wonder that the members of the medical profession, drawn together by its many hallowed ties, should unite in fraternal organizations.

STATE MEDICAL SOCIETY.

The progress of medicine in our own State is a subject of interest to us, and it will form a chapter in the history of our commonwealth which will claim the attention of those who come after us. The first effort at a State organization was in 1856, now thirty-two years ago, when the late Thomas M. Logan, of Sacramento, and Elias S. Cooper, of San Francisco, issued a call for a medical convention in Sacramento for the purpose of organizing a State Medical Society.

A goodly number of physicians responded to that call and organized such a Society, which adopted a constitution, by-laws, and order of business. But the profession was then an incongruous body, with representatives from nearly every nation on the face of the earth, possessing their national traits, with prejudices born of education and surroundings.

As the satisfactory working of a piece of complicated machinery requires a proper adjustment of the several parts, so the successful working together of a large body of men requires special training. The labors appertaining to this organization developed the mental angularities of the individual members; and after passing through a few sessions of polemics and dissensions it died of inanition in 1861.

During its existence the following gentlemen were honored with the Presidency: B. F. Keene, El Dorado; Henry Gibbons, Sr., San Francisco; Arthur B. Stout, San Francisco; R. B.

Ellis, San Francisco; Isaac Rowell, San Francisco, and Samuel F. Hamm, El Dorado. Arthur B. Stout, is the only one of these now living.

MEDICAL JOURNALS.

While this organization did not accomplish all its projectors hoped, it was productive of much good. In the year of its origin the "California State Medical Journal" was established in Sacramento by the late John F. Morse. It was a quarterly, and the fourth number contained its valedictory.

In 1858 the "Pacific Medical and Surgical Journal" was established in this city by the late Henry Gibbons, Sr., who continued to edit its columns until shortly before his death in 1884, when he transferred it to its present manager. It still survives its founder, a creditable monument to his ability, industry, and love of his profession.

In 1860, "The San Francisco Medical Press" was established by the late Elias S. Cooper, and was merged in the latter journal in 1865. The "Western Lancet" was established in 1872, and, like the "Press," lost its identity in its older competitor. During the year 1886 there were three journals established: one at Los Angeles, "The Southern California Practitioner," a sparkling monthly, reflecting credit upon its editors; one in this city, "The Pacific Record," a monthly with a large list of subscribers; and one in Sacramento, "The Medical Times," a popular monthly, with a rapidly increasing subscription list, and a corps of earnest editors.

MEDICAL COLLEGES.

The Medical College of the Pacific, the first on this Coast, was established in this city in 1858 by the lamented Elias S. Cooper. It did creditable work in the field of science, and sent out many graduates who have attained honorable positions in the profession; but it suspended temporarily in 1864, soon after the death of its founder. During the latter year another school was organized in this city which, in honor of its founder, was called the Toland Medical College. It was conducted as a private institution until 1875, when the property was deeded to the State as the Medical Department of the University, and now stands a monument to his generosity.

In 1870 the Pacific Medical College again opened its doors for the admission of students; and in 1882, through

the munificence of one upon whom you have been pleased to bestow the highest honor within the gift of this Society, it was placed upon an everlasting foundation, whence the light from its towering walls on the hills of the West, like the rays from the wonderful antique lamp of the student Hieronymus, "through the mist and murk and dropping rain, streamed out into the darkness, and was seen by many wakeful eyes." The College of Medicine of the University of Southern California, was established at Los Angeles in 1885. It organized with a full corps of earnest instructors, and graduated its first class last week.

RE-ORGANIZING THE STATE SOCIETY.

In February, 1870, the state legislature passed a bill creating a State Board of Health, conferring upon it such powers as were then deemed necessary to conserve the public health.

That Board, through its efficient secretary, Thomas M. Logan, issued a call for another convention to meet in the hall of the Young Men's Christian Association in this city, on the 19th day of October following, for the purpose of re-organizing the State Medical Society. This call resulted in the assembling of 46 physicians. They re-organized, elected Dr. Logan President, and adopted the constitution, by-laws and order of business of the old Society. During the meeting of two days, which was characterized by industry and harmony, 36 members were added by application and election.

It received a further impetus in 1871, when the American Medical Association held its annual meeting in this city. Anticipating that event this Society held a special meeting in Pacific Hall on the 1st day of May, at which time 72 applicants were elected to membership, making 154 in all, or nearly one-half the practicing physicians in the State. An interest in professional matters was re-kindled which has never ceased to burn, though its fires have sometimes paled. From the remotest parts of the State members have come to our annual meetings, braving the *mal de mer*, or enduring the discomforts incident to a stage ride over snow-clad mountains, across swollen streams, and through miry vales. That the time, labor and money thus expended have resulted in valuable acquisitions to this Society, and benefit to the profession at large is apparent from the increased membership, the higher standard of medical education established in this State, and the improved scholarship in the profession.

The distinguished members who have served this Society in the capacity of President since its re-organization, are herewith enumerated chronologically: Thomas M. Logan, Sacramento; Henry Gibbons, Sr., San Francisco; Geo. A. Shurtleff, Stockton; Thomas H. Pinkerton, Oakland; John M. Brown, (U. S. N.), Vallejo; Alexander B. Nixon, Sacramento; Wm. Fitch Cheney, Chico; Washington Ayer, San Francisco; Henry S. Orme, Los Angeles; A. W. Saxe, Santa Clara; F. Walton Todd, Stockton; Gerrard G. Tyrrell, Sacramento; Levi C. Lane, San Francisco; Ira E. Oatman, Sacramento; R. Beverly Cole, San Francisco; William P. Gibbons, Alameda, and Walter S. Thorne, San Jose.

Thomas M. Logan and Henry Gibbons Sr., the first two, to whose untiring efforts more than to those of any others was due the success of this re-organization, have gone, ripe in years and full of honors, "to that undiscovered country from whose bourn no traveler returns."

> "The forms they hewed from living stone,
> Survive the waste of years alone,
> And, scattered with their ashes, show
> What greatness perished long ago."

And Wm. Fitch Cheney, the seventh in order, has been "gathered to his fathers." In the prime and pride of manhood, in the enjoyment of a lucrative practice, and in the zenith of an enviable professional reputation, he died a martyr to professional enthusiasm.

The progress of our State during the past three years has been phenomenal. Prosperity and thrift prevail throughout its great extent. In 1885 our population was estimated to be about 1,000,000. It is now estimated, from reliable sources, to be 1,350,000, or an annual increase of 100,000. The increase in the number of medical practitioners has been proportionately great.

The records show that there are now more than 1,700 regular physicians in this State, but only about one-fifth of them are members of this Society. During a recent excursion through the State I visited the city of San Diego, which had a population of 3,000 souls three years ago. Last year it was estimated at 11,000, and to-day they claim 30,000. The number of practitioners of medicine recently reported from that county is 146, and they have a County Society of 37 members, but this Society has only five members in that county.

San Bernardino County has 60 physicians, and a County Society of 20 members; but we have only four members in that county.

The city of Los Angeles had a population of 11,311 in 1880. Last year it was estimated at 40,000, and to-day they boast of 80,000. There are 200 regular physicians in the county, and they have a local Society of 40 members; yet the State Society has only eleven members in that county.

Ventura, Santa Barbara and San Luis Obispo Counties are prosperous in the extreme, with rapidly increasing populations following up the advent of new railroads. They have more than 100 resident physicians, yet not a local Society; and this Society has only five representatives in the three counties.

In the city of San Francisco more than 40 per cent. of the resident physicians are members of this Society, while in the counties above enumerated only about five per cent. are members.

At first thought this great disproportion in membership between the central and southern parts of the State seems to indicate a condition of apathy in the latter which is incompatible with the character of a learned profession. But the problem becomes one of easy solution when we remember two important factors, viz. that the population in the southern counties is of rapid growth; and that this Society has never held a meeting south of San José.

It is more than seven hundred miles from this city to the southern border of the State, and while we have a few members in these far away counties who rarely fail to meet with us, there are many excellent and reputable physicians there, unaffiliated in Societies, who feel that the time and expense necessary to attend our meetings are too great. But within ninety days from this date the cities of San Diego, Santa Barbara and San Luis Obispo will be distant from Los Angeles not to exceed four hours by rail. Enthusiasm, like small-pox, is contagious and requires the presence of the germ to infect. Is not, therefore, the subject of holding the next, or an early annual meeting in the southern part of the State worthy your serious consideration?

In this connection, too, I may remind you that it is well along in the second decade since the American Medical Association held its memorable meeting in this city, and suggest that it will be wise to "put our house in order," that we may extend to that body an invitation to hold its annual re-union here on the

twentieth anniversary of that occasion. Such an event will occasion another revival in professional matters on this coast, the result of which is not within the range of the keenest vision to discern. But we should have a largely increased membership in our Society, to greet them on such an occasion.

EXPERT TESTIMONY.

This Society has frequently passed resolutions calling upon the Legislature to enact some law whereby a competent expert may require a fee commensurate with the value of the testimony to be given. The knowledge possessed by the expert which peculiarly fits him for that function has usually been acquired through years of arduous toil over the "midnight oil," and the expenditure of thousands of dollars. This knowledge is justly regarded his "capital in business." Neither individuals nor governments have any more right to despoil him of that capital without just compensation than to require the banker to give up his gold, or the merchant his silk.

While there may be no special enactment on this subject there seems to be some general law applicable, and the Courts of this State have set the precedent by ordering such fees to be paid.

The following letter upon this subject is self-explanatory:

"April 3rd, 1888.

"*My dear Dr. Plummer:*

"In relation to the subject of your inquiry, the following may be of some interest: In 1872, during the second trial of the notorious Laura Fair for the murder of Mr. Crittenden, ten medical experts—among them Drs. Bennett, Sawyer, Bertody, Hammond, Stillman, Shurtleff, and myself—were detained in Court about five days, and received as compensation therefor by order of the Court, two hundred and fifty dollars each. The presiding Judge on the occasion was Reardon, of Grass Valley, and the Prosecuting Attorney was the present Judge Murphy of our Superior Court.

"On the 14th of last December I declined, unless *compelled*, to give any expert testimony in the case of the 'People against Maroney,' then on trial for the shooting at Judge Murphy. Judge Toohy, presiding, ruled that, according to a recent decision of the Supreme Court of Pennsylvania, an expert was *compelled* to testify, *provided, he was previously guaranteed expert*

fees by the Court. I testified accordingly, and, on February 6th of this year, was paid fifty dollars, the amount ordered by the Court. Yours truly,

C. F. BUCKLEY."

With this position taken by the Courts of our country it seems scarcely necessary to importune the Legislature to take action upon this particular branch of the subject.

But there is another phase of this question which may well claim the serious consideration of that body. Our laws permit both parties litigant to examine experts, ostensibly for the enlightenment of Courts and juries. Over-zealous attorneys frequently subpœna experts because of the particular opinion they entertain, rather than the knowledge they possess. Such testimony is usually in behalf of the party who pays for it; hence the Court and jury are frequently unenlightened, the ends of justice defeated, and a reproach cast upon our profession. The laws of our sister republic, France, provide that experts shall be selected by the Court from among those of well-known ability on the subject at issue, and of unquestioned integrity. The Court orders the compensation, and the expert becomes a part of the machinery of the Court. It is my belief that, with an unimpeachable judiciary, the ends of justice will be better subserved by a similar law in our own country.

FŒTICIDE.

The crime of fœticide has often been condemned by this Society, and the Committee on Legislation instructed to draft such a bill as will offer better prospect of punishing the criminal. Your present Committee, aided by the valuable co-operation of our honorary member, Dr. E. R. Taylor, attorney at law, has devoted much consideration to this subject, and arrived at the conclusion that any law more stringent than that now governing the matter will place physicians in the power of blackmailing schemers.

STATE MEDICINE.

The International Sanitary Congress recently assembled at Rome failed to evolve anything of practical utility in the department of prophylactic medicine; but we need not look far for an explanation. As ancient Rome on her seven hills went down amidst too many conflicting political elements when she essayed to become "Mistress of the Ancient World," so

this modern city, in her laudable efforts to establish "sanitary lights" for the guidance of the civilized world, failed, because of too many conflicting commercial interests.

QUARANTINE.

The subject of Quarantine is one to which the public and the profession on this Coast have recently had occasion to give much consideration. One year ago small-pox was declared epidemic in Los Angeles, and we are only now recovering from the effects of one in this city. One of our prosperous mountain towns was in quarantine several weeks, and sporadic cases developed throughout the State. San Francisco is the chief sea-port city of the Pacific Coast, and is in almost daily communication with China, Japan, Australia, the Pacific Islands, South America, Central America, and Mexico, the hot-beds of cholera, typhus, small-pox, and other contagious diseases. This is the western gateway to the homes of sixty millions of people. There are not less than six daily overland trains leaving this coast, and all liable to carry the germs of disease into the very heart of this great nation. Realizing this, it is but in accordance with the American sentiment of preventive medicine that we desire protection. We want a quarantine station, and since it is for the national good, the nation should provide it. Our Congressmen in Washington have been earnestly moving in the matter, and this Society should take the necessary action in the premises to give them "aid and comfort" in their noble work.

BOARDS OF HEALTH.

It is the sentiment of the State Board of Health, in which I heartily concur, that the number of local Boards should be increased. There should be one in every town of 500 inhabitants; or there should be a County Board with general powers of supervision. The Legislature has already provided the method of forming such Boards through the Supervisors (see Politlcal Code, Sec. 3060 and 3061); but to enable these, and the State Board as well, to better protect the public from pestilential invasions or during epidemics, they should have increased powers. One essential measure in this direction will be a law rendering vaccination compulsory in every child before it is admitted into any public school.

BURIAL PERMITS.

The protection of property rights, the security of life, and the punishment of crime, call for some measure to prevent the interment or cremation of any human body in this State without a proper permit. These should be issued by Health Officers or Boards of Health, where such exist; or, in the absence of either, by a Justice of the Peace. They should be issued only on a certificate of death signed by a legally qualified practitioner of medicine in this State, if there be such within reasonable distance of the deceased; otherwise by the Coroner, or by two reputable citizens cognizant of the death and its cause; such certificate and permit to be filed for record in the proper office.

BIRTHS, MARRIAGES AND DEATHS.

The law relating to the recording of births, marriages and deaths is so imperfectly executed that it is of no practical value in the compilation of statistics. Sections 3075 and 3077 of the Political Code, and 377 and 378 of the Penal Code provide for the enforcement of the act, and health officers should enforce it.

MEDICAL PRACTICE ACT.

The "Regulation of the Practice of Medicine" by Legislative enactment is of ancient date. Aristotle wrote: "Even in Egypt the physician was allowed to alter the mode of cure which the law prescribed to him after the fourth day; but if he did so sooner he acted at his own peril."

While it is true that some run after "strange gods," it is equally true that many are slaves of habit, and believers in the wisdom of the past. Innovations are not received by them with that warmth of affection which usually greet the first-born in the new household. But when a custom has lapsed for one generation or more it practically becomes an innovation to re-establish it. When the effort was made in this state, in 1876, to secure the passage of a bill to Regulate the Practice of Medicine, it met violent opposition both within and without the profession. The result was, we accepted such a law as could be obtained—not such as we *desired.* But it served as an entering wedge, and in 1878 salutary amendments were procured. We have annually appointed a Board of Examiners in accordance with its provisions, and yearly reports of that Board have been presented to this Society.

A part of the commendable work performed by it is set forth

in the Medical Register, wherein all persons engaged in the practice of medicine in this state have been classified according to their practice and qualifications. It is no longer possible, therefore, for any one to impose himself, under false colors, upon the public or the profession.

For some years after the adoption of the present law the halls of legislation were patrolled by parties whose financial interests were concentrated in its repeal or modification. Your Board of Examiners and Committee on Medical Legislation recognized its defects, but feared that any bill which might be started on its passage through the legislature would be so shorn and changed by amendments that it would not be recognized when it should emerge in the form of a law. They therefore reasoned that the interest of the public and of legitimate medicine would be better conserved by using all proper influence to prevent any further legislation on that subject until the desirability of such a law should be more firmly engrafted on the public mind.

Such a time seems now to have arrived. The people are becoming aware of the fact that while certificates of competency and integrity are required of engineers, bank cashiers, and "kitchen divinities," it is equally important to look after the qualifications of those into whose hands they consign themselves when overtaken by disease or accident. After the experience of ten years in the administration of the present law we are better enabled to point out its defects and suggest the remedies.

NEW LAW.

Last year this Society adopted a resolution affirming its belief that public and professional interests would be better subserved by a single Board of Examiners rather than by three, as now constituted ; and that an examination of the applicant as to his fitness to practice the healing art is preferable to examination of his diploma as the basis of his right to a certificate, as now provided. In accordance with that sentiment your Committee on Medical Legislation, with the coöperation of our honorary member, has prepared a bill which will be presented for your consideration during this meeting.

We learn from the writings of Strabo, Aristotle, Plato and others, that ancient Greek physicians, "practiced as stipendiaries at the Royal Courts," and as "public functionaries with stated salaries, appointed by the people." It was not an innovation,

therefore, when the legislature, in creating the State Board of Health, provided that its expenses, not to exceed $4,000 per annum, should be paid out of the public treasury. The sequel has proved that it was a wise appropriation of public funds; but when the bill was approved creating the State Board of Examiners no such provision was made for its expenses. The only revenue, under the law, is derived from the fees for certificates, and this is inadequate to a proper discharge of the duties of the Board.

While the function of the State Board of Health appertains to preventive medicine, that of the State Board of Examiners has reference to practical medicine—quite as important to the public. In the efforts of the latter Board to enforce the Medical Practice Act the want of funds has seriously interfered; hence, among the features in the proposed bill is one providing a sum of money not to exceed $5,000 per annum to defray its expenses. Many of the features in the old law have been retained in the new bill, among which is the section having reference to the refusal or revocation of certificates for unprofessional conduct.

Like the priest-physicians of old, the doctor frequently fills the office of confessor as well as doctor. He is familiar with all the ills to which flesh is heir. "The mystery of birth, the solemnity of death, the anxiety of disease, and the agony of despair," are phases of life daily presented to his view. He is admitted into the *sanctum sanctorum* where no other feet than his are permitted to tread. He is a welcome spectator and auditor where no other is permitted to look or listen. Human nature, stripped of all conventionalities, lies exposed before him. The aspirations of intellect, the devotions of love, the secrets of conscience are revealed to him in the hour of triumph, of weakness, or dismay. If purity of character and unsullied reputation be required in any walk in life, surely it should be in the medical profession. Pope's invocation to the physician at his bedside expresses his high appreciation of the healing art, and of him who properly dispenses its blessings:

> "Friend of my life, which did not you prolong,
> The world had wanted many an idle song."

But the spirit of "trade," in the guise of the "Medical Jesuit," has invaded the sacred precincts of medicine and robbed it of much of its inherent dignity. It creates motives, justifies methods, and leads to ends wholly at variance with truth and dignity. No one ever descends from the exalted position of a

true disciple of Æsculapius to the methods of the charlatan until he demonstrates to himself, as well as to the public, his inability in the practice of medicine. Christopher Smart fully appreciated this character when he painted it in the following lines:

> "On mere privation she bestowed a frame,
> And dignified a *nothing* with a name;
> A wretch devoid of use, of sense, of grace,
> The insolent tenant of encumbered space."

The ethics of our profession are older than the canon-law, older than the church itself; and they ought to be supported, that the public may be protected from imposters, and the profession from debasing influences. This is not now an experiment, for it has been so long recognized by the Bar and the Bench as applied to the legal profession, and so often sustained by the courts in behalf of the medical profession, that no principle of law seems better established.

MEDICAL EDUCATION.

Medicine was taught in ancient times in the temples of Æsculapius, in the schools of philosophy, and in the gymnasia. Plato had the following inscription placed over the door of his academy:

> "Let none ignorant of geometry enter here."

Hippocrates wrote: "Things which are sacred are only to be imparted to sacred persons. It is unlawful to impart them to the profane until after their initiation into the mysteries of the Science." In writing to his own son, he said: "Give due attention, my son, to geometry and arithmetic, for such studies will not only render your life illustrious and useful to your fellow beings, but your mind more acute and perspicacious in arriving at fruitful results in everything pertaining to your art."

If a liberal knowledge of the arts and sciences was a prerequisite to the study of medicine in ancient times, it is equally important to-day. In the near future we should have a law requiring the would-be student who has not a degree in arts to pass an examination before a State Board prior to entering college. All the collateral branches should be laid under liberal contribution. He should be required to know enough of the language in which lectures are delivered to comprehend all that is said to him; and he should also be able to make himself understood [illegible]nts and attendants.

The subject of medical education is so closely allied to that of medical legislation that they are practically inseparable. If the standard of acquirements to practice be raised by the State Board, it necessarily follows that the standard of education will be raised by colleges. Students will then seek those institutions which afford the best facilities for learning rather than those which provide an easy pathway to an "M. D." degree.

The three colleges in this State are keeping pace with the times on the subject of education, each requiring stated qualifications, or preliminary examinations for entrance, and three regular courses of lectures delivered during three separate years before the student is admitted to the final examination. The matriculates in these three colleges during the year 1887 numbered 191, of whom 44 were sent out from their sheltering roofs with the veritable parchment bearing witness that the holders had been legally invested with the title Doctor of Medicine.

But we regret to chronicle the fact that students have entered college in this city on the 1st of June, and after attending lectures four months, have gone to some of the adjacent or Eastern schools, returning here the following March—less than ten months from the date of matriculation—with a diploma from a "college in good standing." Is this justice to the students, to the profession, or to the public? Is it in support of that higher standard of education recommended and adopted by the better class of institutions of learning throughout the civilized world? Is it not rather an explanation of the *modus operandi* by which the country is flooded with incompetent and impecunious doctors?

Our Board of Examiners, recognizing this evil, has adopted and published a resolution, sending a copy thereof to every medical college in the United States, that on and after March 1891, it will not grant a license upon a diploma from any school which does not require of its candidates for graduation three regular courses of lectures, delivered during three separate years. In this effort it deserves the warmest support of this Society.

In this connection, we are glad to note that the Medical Department of the University of Wooster, at Cleveland, Ohio, and the Medical College of Ohio, at Cincinnati, have given notice that they will hereafter require attendance upon a three

years' graded course. The St. Louis Medical College has lengthened its term of lectures to six months, and the Chicago Medical College to eight months.

DISCUSSIONS.

Few men in our profession have the forensic power of moral courage to indulge in an impromptu debate; I have therefore stepped aside from the well-beaten path of my predecessors, in appointing members to open the discussion immediately following the reading of the Committee reports in the practical Sections. I trust the infraction will receive your cordial indorsement.

I desire to call your attention to the condition of the Constitution and By-laws of this Society. While they may have been adequate to our wants thirty-two years ago they can scarcely be expected to cover the requirements of to-day. I therefore recommend that a Committee be appointed early in this meeting to prepare such amendments as may seem desirable.

REPORT OF COMMITTEE ON

MENTAL DISEASES AND MEDICAL JURISPRUDENCE

By W. W. McFARLANE, of Agnew, Chairman

WHY OUR ASYLUMS ARE CROWDED

About 1,000 years before Christ is recorded the first case of insanity. Saul was possessed of an evil spirit and was calmed by the music of David's harp. About 500 years later "Nebuchadnezzar was driven from men, and did eat grass as oxen." The Greeks called Diogenes a philosopher, instead of sending him to an asylum. The only evidence of his sanity was negative; he wrote no Greek books. During the Dark Ages many religious lunatics were canonized. The material for manufacturing saints was abundant for several centuries. St. Simon, for example, lived for thirty years on the top of a tower only three feet in diameter, and stood for one whole year on one leg, the other being covered with ulcers. Had he lived during our time he would be sent to the Asylum for the Chronic

Insane, when it is ready for patients. As late as the seventeenth century the insane were again supposed to be possessed of evil spirits, and many were tortured and many burned as witches. Happily for the insane the diagnosis and treatment of insanity has recently become rational and humane.

Whether the progress of civilization has increased the number of insane is a question that every medical psychologist will promptly answer in the affirmative.

The purpose of this paper is not to prove that California has a larger per cent. of insane than the other States, but to give some reasons why our Asylums are crowded. That we have a larger per cent. in our State Asylums is undoubtedly true, and we propose very briefly to inquire into the causes which bring about this result.

California had hardly become a State before she began to make provision for the care of her insane, and with her proverbial liberality she determined to pay all expenses herself and leave nothing for the counties to do. At that time, when the floating population was so large, this was the best thing that could be done. Now every county has her own hospital and almshouse and can easily keep her own harmless, chronic, demented and paralytic cases, and keep them as cheaply and securely as the Asylums can possibly do. If this class is kept at the county hospitals the county supports them; if they are sent to the Asylum the State supports them. Hence all classes, including many idiots and some cretins, are sent to the Asylum. If each county paid for the support of her own patients in the Asylum, many cases would be kept at home, to the great advantage of those who need Asylum care and treatment.

All the causes of insanity enumerated in the text-books obtain to their fullest extent in our State. Wonderful stories of the richness of our mines, the fertility of our soil and the mildness of our climate brought to California thousands from every civilized country of the globe, expecting to become rich in a few months or years. It is needless to say that many were bitterly disappointed, and others, intoxicated by success, plunged into all manner of dissipation. The restraints of home and friends were removed and the whole surroundings were different from what they had been accustomed to, and in many cases reason was dethroned. More than sixty per cent. of the patients in our Asylums were of foreign birth. Our

"mutual friend" the Chinaman is admitted duty free as far as the Government is concerned, he pays very little taxes, he smuggles his opium, he does not become a citizen, and yet with all these advantages he will go crazy and become a burden to the State. There has been an average of about 150 Chinese in our Asylums for many years, and the annual cost of supporting these subjects of the Chinese Empire is about $22,000. It would certainly be economy—would it not be right to return these aliens to their own country?

The saloon, the gambling house, the opium den and the brothel stand open day and night, and are constantly furnishing material for the Asylum. This fact is so patent that it needs no argument. California enjoys the proud distinction of being the only State in the Union that has no Sunday. On Saturday night and Sunday all places of dissipation do a rushing business, and the great number of these places in every city, village and cross-road would indicate that they do a fair business all the week. The habitual drinker presents many signs which indicate disease of the brain, and this condition may and often does pass into insanity. The appetite acquired by habit is so powerful in the habitual drinker, the ideas which might oppose it are so weak and the will has become so paralyzed that he, even though he is aware that he renders himself despised and contemptible, undermines his constitution, disturbs his domestic happiness, ruins his business, postpones the good resolutions which he has perhaps made, because the saloon is only next door. And all that is said of saloons may be said of opium dens and gambling hells intensified.

In this day of advanced civilization and Sunday picnics it is very unfashionable to raise a family. Two babies, and sometimes one, is one too many; if there is a possibility of more, the services of the irregular—is it always the irregular?—is required. It is one of the mysteries why a just God permits so mean and contemptible and cowardly a murderer as the professional abortionist to live and longer cumber the ground. The law is all right, but the jury to convict cannot be found. During the Star Route trials I asked a member of Congress if any one would be convicted. He replied, "No; the criminals are political leaders in both parties." An abortion frequently, and many certainly, destroys a woman's health, and then the curtain rises on the second act of [illegible] drama: The shys-

ter lawyer is consulted—twin brother to the quack doctor; one of those fellows who advertise in the daily papers divorces procured without publicity. The poor woman, ruined physically, morally and mentally, it is not surprising that she becomes insane, is arrested, taken before a commission and committed to an Asylum. I often wonder if the doctor who ruined her health and murdered her child for $25 or $50 does not sometimes receive $5 from the county for *signing* the commitment.

Strict economy in the administration of State institutions is right and commendable, but economy carried too far ceases to be economy and becomes extravagance. Every one who has ever been connected with an Asylum knows that hygienic and moral treatment restore more cases than medicine. You would hardly be justified in visiting a case of typhoid fever or pneumonia and spending less than twenty to thirty minutes in the sick room. That much time, at least, is necessary to make an examination and prescribe. The Asylum for the Insane, at Stockton, has to-day nearly sixteen hundred patients. The time of the Superintendent is fully occupied in superintending this vast institution, and his two assistants have the immediate care of the patients. If each assistant should give *one minute* to each patient, it would require thirteen hours to make his round. Is it surprising that there are two thousand or more chronic insane at Stockton and Napa? It is sometimes said (the expression is not very refined, but is very expressive) that a man "bites off more than he can chew," and the State may do the same thing.

It seems to me the laws governing our State Asylums need remodeling. The laws governing the Asylums should be uniform. Why should the law governing the Asylum at Napa differ from the law governing the Asylum at Stockton? Again, in the Eastern States the Superintendent is the head of the institution; in this State the Board of Trustees or Directors is the head of the institution. In the Eastern States the Superintendent appoints *all* the employees and, in some States, the resident officers, and discharges them when the best interests of the institution demand it. In this State the Board makes all the appointments, and all discharges, for whatever cause, must be approved by the Board.

Most people think they know something about insanity. They often think they know better than the doctor what should be done with the patient, and they are profoundly knowing as to the causes which produced the trouble. For are not the

men who have spent their lives in the care of the insane old fogies, running year by year in the same old ruts? Surely, there is need of some enlightenment in the management of the insane and of Insane Asylums, and it is to be hoped that the next Legislature will do something for the suffering management as well as the suffering patients.

DISCUSSION ON REPORT OF COMMITTEE ON MENTAL DISEASES AND MEDICAL JURISPRUDENCE.

Dr. J. W. Robertson, of Napa, in opening the discussion, said: The question, whether or not insanity is on the increase, had often been discussed. There was no doubt that the number of the insane had increased. When the insane asylums were first opened they were looked upon as jails. It was found that but little restraint need be employed. In the reception wards of the asylums were placed some of the most intelligent patients, who understood the rules of the institution and were quiet. Patients, on their way to the asylum, are frequently subjected to rough usage, and consequently arrive in an excited and exhausted condition, but on finding that they are surrounded by quiet and order they soon calm down. There was not a single straight jacket in Napa, or a dozen patients under restraint. Chronic and acute cases should be kept apart. One violent patient would upset a whole ward. It was desirable that the insane should be sent to the asylums early, as under the influence of strict rule and hygienic measures they were invariably benefited. Theoretically there should be an asylum for every county. This, of course, was impracticable, but there ought to be an asylum for every congressional district. Regarding the question of increasing the number of physicians in the asylums—of the 1,400 cases in Napa, about 800 received very little medical treatment. In other States, where the staffs were numerous, the salaries were small. The best men were therefore not attainable, and there was no permanency. It required a year's training for a physician to be successful with the insane. He believed that the existing system was the best. The suggestion that there should be one law for the government of the State asylums was an excellent one. At Napa the Board had absolute control over the appointments [illegible]s.

Dr. W. H. Mays, of Stockton, said that insanity was not more prevalent in this State than elsewhere. There were in Stockton 1,600 cases; in Napa 1,400. Estimating the population of the State at one million and a quarter, the rate would be 1 in 400—a very low percentage. In New York the percentage was 1 in 352; Massachusetts, 1 in 362; Illinois 1 in 345; Great Britain, 1 in 348. The profession should endeavor to remove the prevalent belief that this State had more than its share of insanity. In no State in the Union were the insane so closely sifted out. There seemed to be an intolerance of any form of mental disease, and all cases were promptly sent to the asylums. He believed that there was a crying need for more medical help. It was true that a large number of the inmates did not need medical treatment, but they required what was of more importance—care, employment, amusement and general surveillance. He was glad to learn that the asylum for the chronic insane would soon be opened.

Dr. H. D. Robertson, of Yreka, said that it frequently happened that patients were discharged before they were cured. He was glad to know that there would soon be more accommodations for the insane, and he hoped that the physicians in charge of the asylums would then use a little more judgment and make an effort to hold these patients until they were cured.

Dr. Mays thought that if the speaker was present in the asylums for a few months he would modify his statement that the authorities were hasty in discharging patients. The question of discharging a patient really was, "Is he so insane that he needs to be retained there?" When patients recovered, to all intents and purposes, and when they became sane enough to be discharged there was no alternative other than to do so, even if they again became insane. Patients are said to have recovered from diseases, as pneumonia, but that did not guarantee that there should be no recurrence, and it was the same thing in mental diseases.

Dr. Grover, of Berkeley, said that the overcrowding of the asylums was partly due to the fact that what are called "insane criminals" are sent there. There should be a branch asylum attached to the State Prison at Folsom or San Quentin for such cases.

SUPPLEMENTAL REPORT

ON

MENTAL DISEASES AND MEDICAL JURISPRUDENCE.

By N. S. GIBERSON, San Francisco.

THE CRIMINAL RESPONSIBILITY OF THE INSANE.

"There is a winter in my soul,
The winter of despair;
Oh! when shall spring its rage control,
When shall the snowdrop blossom there?
Cold gleams of comfort sometimes dart
A dawn of glory on my heart,
But quickly pass away.
Thus Northern lights that gloom adorn,
And give the promise of a morn
Which never turns to day."

Insanity may be called in general terms the Nemesis of civilization. The scourge of the educated and refined, it is the handmaiden of exalted nervous function. No class of beings has suffered so much from ignorance and intolerance in past ages as the insane. Originally supposed to be under demoniacal control, they were handed over to the tender mercies of the executioner and the priest—the devil was to be exorcised either by the lash or the penance. The aboriginal savage used to view his demented brother with compassion and even reverence, but, in the favorite haunts of the older civilizations, every conceivable brutality was meted out to the luckless lunatic. And the law, like the religion of the time, could not reasonably be expected to be very far in advance of contemporary thought. Law, religion and legislation are generally effects, not causes. This intense conservatism is forcibly put by Mr. Maine, in his work on Ancient Law. He says: "The stationary condition of the human race is the rule, the progressive, the exception. It is indisputable that much the greater part of mankind has never shown a particle of desire that its civil institutions should be improved since the moment when external completeness was given to them by their embodiment in some permanent record."

As a consequence of this conservatism, the Courts of Criminal Judic[illegible] [illegible]till fettered by the old theories—as old and

antiquated as the Ptolemaic theory of the universe—respecting the tests of criminal responsibility; and the sheeted ghost before the Tribunal of Justice has not ceased to gibber and squeak to the unhappy lunatic at the bar, the Shibboleth of 300 years ago: "Do you know the difference between right and wrong? Do you labor under delusions?" A negative answer to the first, and an affirmative answer to the last question, was held to establish lunacy. The utter fallacy of both these tests in determining the presence or absence of sanity has long since been proven, and this has been the battle-ground where the scientific alienist has contended nobly and successfully against the ancient spirit of the common law. The fact is now generally accepted, and it can be verified by the testimony of innumerable attendants on the insane, that the knowledge of right and wrong is frequently possessed by the most violent lunatics, and that mania of the most dangerous character may occur without the intervention of delusions. In fact, it may be asserted that the majority of the insane never lose this knowledge until they become maniacal to incoherence, or demented to fatuity. To what other motive are we to ascribe the sly and crafty movements with which the kleptomaniac seeks to cover his insensate thefts, except to a knowledge that he is doing wrong? The ability to distinguish between right and wrong is there; it is the power to avoid the one, and to cleave to the other, that is missing.

"It seems illogical," says a distinguished author, "to speak of a man with a disordered mind as a free moral agent, and the fact of his being able to distinguish between right and wrong is no more a test of his sanity than his being able to distinguish light from darkness is an evidence of his power of choosing between colors. A paralyzed man, whose house is on fire, may know that it is wrong to remain in it, but he can exercise no choice about leaving it. He is compelled to one course of action only, despite his knowledge and his wishes to the contrary. Those 'who know the right and yet the wrong pursue' are not necessarily malefactors. If there be one expressly characteristic feature in insanity dominating all others, it is that of the extreme difficulty, if not impossibility, of self-control, no less in action than in thought. We all know from experience that the most healthy minds, when strongly moved, are often carried, against all power of self-resistance, beyond the limits of self-control; anger and

indignation in certain temperaments become temporary convulsions. No one pretends, however, that such persons should be exonerated from responsibility on this account, because they have an anchorage in health, and it is their duty to maintain their hold upon it. But it is very different with the insane, who, having lost their mental ballast, are easily careened and overthrown in the contest with their own judgment as well as feelings. Such men may know fully, and yet not be able to act any more than a man, finding himself falling, can choose between a hard and a soft spot on which to alight." Just here the question might be asked in all seriousness: Is it possible for a man to have a brain perfectly healthy in all respects but one: to exercise all the co-ordinating powers of mind save those belonging to a certain subject or class of subjects? Physical disease is conceded to underlie mental aberration, and are we justified in violating all the laws which govern the pathology of other organs to claim for the brain that a portion of its wonderfully complex organism may become diseased while the rest remains intact?

The plea of insanity as a bar to criminal prosecution has, of late years, abated somewhat of its popularity. It is declared to be a wornout subterfuge, and one which will no longer receive the support of an enlightened public opinion. And yet it is gravely urged by more than one learned specialist that the mere act of killing is of itself *prima facie* evidence of insanity, either in its general form, or as a homicidal mania. In court the principal dread of the plea of insanity seems to be that the dignity and sovereignty of the tribunal will not be sufficiently vindicated unless capital punishment is inflicted upon the accused, regardless of his mental condition. The proper protection of society requires that an example should be made, and that no legal or medical hair-splitting should arrest the impending sword of justice. But there are some luminous exceptions to this state of feeling. Benjamin Harris Brewster, ex-Attorney-General of the United States, gave a definition of insanity which is as comprehensive as it is brief: "The true test in all cases lies in the word 'power.' Has the defendant in a criminal case the power to distinguish right from wrong, and the power to adhere to the right and avoid the wrong?" Judge Edmonds has also left a concise and energetic opinion on record. Speaking of the defendant, he said: "He knew the act was wrong, yet he was insane. The act of piling up shav-

ings, fastening the woman to her hut, and forcing her back into the flames, was not an involuntary act of the body without the concurrence of the mind directing it, yet he was insane. He knew that the act was contrary to the plain dictates of justice and right, injurious to others, and a violation of the dictates of duty, yet he was insane. He knew that he was acting contrary to law, yet he was insane. He knew the act was one he ought not to do, yet he was insane." "Liberty of will and action," says Dr. Isaac Ray, "is absolutely essential to criminal responsibility, unless the restraint upon either is the natural and well-known result of immoral or illegal conduct. Culpability supposes not only a clear perception of the consequences of criminal acts, but the liberty unembarrassed by disease of the active powers which nature has given us, of preserving that force which is the result of the free choice of the intellectual faculties."

That accomplished alienist, the late Dr. Pliny Earle, has recorded his definition of criminal responsibility as follows: "The congenital idiot, or the man in the very lowest forms of acquired dementia, commits homicide in a fit of anger. Here ignorance of all human law, with incompetence to acquire a knowledge of it is the sufficient excuse. An epileptic, in a violent maniacal paroxysm, kills a man. In this case there is entire unconsciousness of the act, and this is the patent reason for his exemption from responsibility. But a majority of the insane retain, to a greater or less extent, their knowledge of human laws, and they do not, when awake, loose their consciousness. They even know right from wrong in the abstract, or as a rule of general application. But a person in this condition falsely imagines that another person is doing him an injury, perhaps seeking his life. Under this belief he takes the life of that other person. Here the only possible ground for release from criminal responsibility appears to be this—that although the homicide knew right from wrong as a general principle, he could not perceive it as applied to his own case. This delusion destroyed his moral perception. This is a test of wide, if not universal, application."

Professor Ordronaux closes an elaborate review of the subject of criminal responsibility in these words: "After a careful consideration of this subject, extending over a period of many years, first, in its purely legal aspects, as part of the history of our criminal jurisprudence, and subsequently, by personal

examinations of a large number of insane criminals and a critical inquiry into the mental phenomena accompanying the commission of their imputed crimes, I am satisfied that the proper manner of representing such cases to a jury in a charge from the Court, or before a commission of experts, is to require them to determine the following facts, viz. :

First—Whether the defendant, at the time of the alleged crime, knew the nature and consequences of the act he was committing ?

Second—Whether, if he did so know them, he had a felonious intent in committing the act ?

Third—Whether, knowing the nature and consequences of the act, he had the power to choose between doing or not doing it ?

Fourth—Whether, supposing he had lost the power of choosing between right and wrong in reference to the particular act, he had lost that power through disease, and not through intoxication, violent anger, or any form of self-produced mental convulsion ?"

MONOMANIA OR PARTIAL INSANITY.

"Some one peculiar quality
Doth so possess a man, that it doth draw
All his effects, his spirits and his powers,
In their confluxions all to run one way."

"Indeed, it may be rightfully claimed that the whole of our equity jurisprudence, historically considered, is nothing but the record of the triumphs of reformers over this tendency of the law to stagnate ; these victories being wrought into a system of practical devices to correct the inflexibility of common law dictates."

Monomania is to general insanity what equity jurisprudence is to the common law. It has softened and modified the rigor of harsh and general rules, and has placed a bar between the partially insane homicide and his would-be legal executioners. And the long and arduous struggle which characterized the gradual introduction of equity by legal reformers zealous for individual liberty, has its counterpart in the weary contest with ignorance, superstition and precedent, which has at last established the plea of partial insanity on a sound and legitimate basis. It is now a well recognized rule of law that a person whose reason is inoperative, in some respects may be apparently sound on ordinary topics lead him from the subject of his

prepossession and he is once more a sane man. Intellectual labor, involving the closest application and the most analytical thought has been done by men who were victims of the most preposterous delusions. A large part of Conté's wonderful work was accomplished when he was an incurable inmate of a *maison de santé*, and the lines at the head of this paper were written by a man who had been for years a hopeless lunatic in an English asylum.

Genius and eccentricity are terms often employed to designate peculiar characteristics, but how thin the veil which separates these from partial insanity ! Says Caspar : "On the one hand, for instance, individuals are observed who possess, along with a wonderous power of memory, just as feeble a power of judgment ; while others, to the most vivid powers of imagination, conjoin a most wretchedly deficient power of will. In one, an excessive vivacity of character may betray its possessor into actions which may raise doubts as to his actual sanity ; whilst in another, originality of character flashing out as true genius, may so stamp its peculiarities on every act as to require a sharp observation if the limits of sanity have not been overstepped." Maudsley has gone so far as to affirm that the power of originality in new lines of thought, and of stepping aside from the beaten track of reflection, is of itself a common indication of the "insane neurosis." Some of the finest productions of the human intellect it would be difficult to trace to the workings of a perfectly sound mind, unless we are prepared to accept the doctrine that monomania may be co-existent with unimpaired mental health in all other respects. The "fine frenzy" of the poet has given us the immortal classics of Homer, Dante, Milton, and it has truly been written that

> "As imagination bodies forth
> The forms of things unknown, the poet's pen
> Turns them to shapes, and gives to airy nothing
> A local habitation and a name."

During the reign of the Protector, in England, the nation was ruled by a handful of monomaniacs ; men who saw visions and dreamed dreams ; who were half maddened by terrible or glorious delusions ; who listened to the lyres of angels, or awoke screaming from dreams of everlasting fire. These men had subjected every human passion and prejudice to the one overpowering instinct of religious domination. And yet these preposterous fanatics, who were at once the laughing-

stock and the nightmare of Europe for nearly a generation, were eloquent in the pulpit, invincible on the battle-field, cool, sagacious and statesmanlike in council, and they have left, as the imperishable cenotaph of their epoch, the Paradise Lost and the Pilgrim's Progress. The prototype of the correct rule of law on the subject of partial insanity was the case of James Hadfield, which came up before Lord Kenyon and a jury, and was argued by the celebrated Erskine. In his remarks the advocate said: "The deceased, Mr. Greenwood, whilst insane, took up an idea that his brother had administered poison to him, and this became the prominent feature of his insanity. In a few months, however, he recovered his senses and returned to his profession, which was that of a barrister, but could never divest his mind of the morbid delusion that his brother had attempted to poison him, under the influence of which (so said) he disinherited him." In charging the jury Lord Kenyon is reported to have said, "If you think that whenever that topic occurred to him it totally deranged his mind, and prevented him from judging of whom the object of his bounty should be, according to his own will, then the will cannot stand; but if you think he was of competent mind to make his will, to exercise his judgment, however that might be disturbed by passions which ought not to be encouraged, then the will ought to stand." This enlightened view of the subject of partial insanity was soon greatly strengthened by the celebrated case of "Dew vs. Clark," which was heard before Sir John Nichol in the Prerogative Court of Canterbury in Trinity Term, 1822. This application sought to set aside a will on the ground that the testator had conceived an insane hatred of his daughter which was wholly groundless and unjustifiable; and that under the influence of this delusion he had excluded her from that posthumous bounty to which she was naturally entitled. The excellent syllabus of the case was as follows: "Partial insanity is good in defeasance of a will founded immediately (so to be presumed) in or upon such partial insanity. If A then makes a will plainly inofficious in respect to B, and is proved at the time of making it to have been under morbid delusion as to the character and conduct of B, the Court of Probate will relieve by pronouncing this will to be invalid, and holding A to have died intestate." From these premises the deduction follows that where a will is plainly lacking in natural affection, and the testator is laboring under morbid delusion

which has undoubtedly prompted the making of the unnatural testament, the will may be set aside. This rule has met with general acceptance in some of the celebrated American contested will cases. From the "Pennsylvania Law Journal" we quote the charge of Justice King in the case of Leach vs. Leach:

"A monomaniacal delusion inveterately entertained by a testator against one who would otherwise have been the natural object of his bounty, and shown to be the reason which has excluded him from it, and to have had no other existence except in the distempered imagination of the testator, would invalidate a will made under such influence, and for the very plain reason that a will made under such an insane delusion is not what the law requires a will to be, viz.: the product of a mind reasoning rightly. For although the law recognizes the difference between general and partial insanity, yet, if the will has been made under the influence of such partial insanity, and as the product of it, it is as invalid as if made under the effects of an insanity never so general." As an evidence of the keen analytical skill and profound judgment which has been brought to bear on this subject by some of our leading jurists, it will be appropriate to cite the case of Thompson vs. Quimby, in the Surrogate's Court of New York. This case contained all the essential elements of confusion in which a technical soul revels.

It was a notorious fact that the decedent, Thompson, was the victim of a host of delusions, which had been his inseparable companions for many years. He read and believed in books of magic; saw and conversed with disembodied spirits; often saw the devil, who appeared to him as a huge black bull; believed in the philosopher's stone, and held that every person had three eyes, one spiritual and two physical. These and many more delusions were ascribed as the basis for a contention that his will was not the expression of a disposing mind.

In defense of the will it was shown that he had been a shrewd and far-sighted man of business; that his commercial instincts were of the first order; and that his delusions and eccentricities never warped his judgment, nor prevented his amassing a large fortune by the most legitimate methods. Here was a mind manifestly upon the debatable ground between monomania and general insanity. But there was nothing to connect his follies or his preposterous infatuations with the provisions of his will, or with any one of them. The bulk of his property

was left to various benevolent and charitable institutions and his will was constructed with consummate care.

The conclusion of the learned Surrogate (Bradford) is a rapid but luminous review of the entire range of monomaniacal delusions, and he concedes that "after making every reasonable allowance, however, I have no doubt but Mr. Thompson's mind was impressed with a sincere belief in many absurd notions. There seems sufficient evidence to show that he believed in mesmerism, clairvoyance, divining and mineral rods, dreams and spiritual influences. He searched for the supposed deposits of money by Captain Kidd, and ascribed his failure in two instances to the utterance of certain words by the operator. That he said he saw the devil in the shape of a bull seems to be well established." And yet all these admissions did not necessarily establish the fact of insanity. He held that this perverted fancy and this fantastic stock of delusions were largely the result of education, reading, associations, and perhaps of hereditary influences, and concludes: "Being of impression that mere speculative belief does not of itself afford a clear test of insanity, I do not esteem the peculiar opinions entertained by the decedent sufficient to establish mental derangement."

N. S. GIBERSON.

REPORT OF THE COMMITTEE ON

PRACTICAL MEDICINE AND MEDICAL LITERATURE

By SAM'L O. LEWIS POTTER, A. M., M. D., Chairman

Mr. President, Ladies and Gentlemen:

The instructions given this Committee as to its annual duty, in your By-Laws, are as follows:

"*The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases: the improvements and discoveries which have been made in Anatomy, Physiology, General Pathology, Therapeutics and Medical Jurisprudence.*"

When the Chairman of your Committee commenced to prepare for fulfilling the obligation incurred in the acceptance of his place, he naturally turned to your By-Laws for some indication of the sense of this Society in regard to the work expected from its Committee on Medicine: and he was for a long time puzzled to know how to carry out these instructions. He was rather astonished to find that, in reporting upon the management of individual diseases, the Committee was supposed and directed to confine itself to "*the more important improvements effected in this State;*" and he then began to look through the By-Laws for some machinery whereby these "more important improvements" should be reported by those devising them, or having knowledge of them. But he found nothing of the kind—not even a resolution placing some obligation upon the members of the Society to communicate such information to the Committee. As it was manifestly absurd to think of your Chairman's investigating the practice of every physician in the State, in search of these improvements, while, at the same time, reviewing all of Anatomy, Physiology, General Pathology, Therapeutics and Medical Jurisprudence outside the State, he was compelled to the conclusion that this section of your By-Laws does not reflect the sense of this Society in regard to the report of this Committee—furthermore, that the instructions contained in it are incongruous and impracticable, and that this Society would be more honored in their breach than by their observance. A report which would faithfully review the whole scope assigned to this Committee would occupy at least a hundred pages in your Transactions, and would require several hours for its reading. A report, on the other hand, which should aim at carrying out these instructions, within the limits of an ordinary paper, would not be worth the reading, still less the printing.

The questions of interest in Medicine, and those which demand our attention from year to year, are those connected with the management of individual diseases—and if your Committee obeyed this By-Law, and confined its report on individual diseases to the "more important improvements" effected "in this State," so far as known to it, the entire report might be written upon one side of a postage stamp. With all due deference to the profession of this State, it would hardly be expected that we should look so near home, especially in a *boom year*, for important improvements in our Art. Further-

more, as the subject of Medical Jurisprudence is assigned specifically to another Committee as well as to this one—viz.: the Committee on Mental Diseases and Medical Jurisprudence—it would seem that its insertion among the subjects pertaining to this Committee was an error. In consequence of these difficulties, your Chairman concluded to ignore the specific instructions contained in this By-Law, and to deal with the general subject of Medicine as seemed to him best.

Before leaving this matter of the By-Laws, your Chairman would respectfully suggest that the section referring to this Committee be repealed, and in its place that the Society adopt a rule forming the following Standing Committees, viz.:

On Clinical Medicine, including Diagnostics and Therapeutics.

On Pathology and Morbid Anatomy.

On Anatomy and Physiology.

Also, that each Committee be instructed to submit a general report, at each annual meeting, through its Chairman, of discoveries and progress in its particular field, including a review of the literature of the same. Also, that each member of a Committee be instructed to present a paper, upon any subject which he may select so that it be within the general scope of the Committee's work. In this way the members of Committees would, perhaps, be brought to feel some obligation resting upon them, individually, to contribute something to the work of their Committee, instead of, as is generally the case in Medical Societies, expecting the Chairman to do all the work of the Committee.

In some of the Eastern Societies it is the practice to allow the Chairmen of Bureaus to select their own colleagues—the President deciding between several claimants for one person. This method enables a Chairman to associate with himself several gentlemen who are known to him as workers in the particular line embraced by the Bureau; and in practice rarely conflicts in any way, for the reason that most men associate themselves with some one Bureau, and with it alone, in their Society. The adoption of some such plan in this Society would greatly conduce to the efficiency of the Committees.

With this report are submitted two papers, respectively entitled as follows, viz.:

(1.) "*The Progress of Medicine Measured by the Progress of Therapeutics*"—*by Sam'l O. L. Potter, A. M., M. D., Chairman.*

(2.) "*Two Views on the Practice of Medicine*"—*by Geo. W. Westlake, M. D.*

Respectfully,

SAM'L O. LEWIS POTTER, A. M., M. D.,
Chairman.

THE PROGRESS OF MEDICINE

MEASURED BY

THE PROGRESS OF THERAPEUTICS

DURING THE YEAR 1887

The past year has been a busy one in all departments of science, and a fruitful one in many. The mental activity, apparent to the most casual observer who looks around him upon the world of to-day, evinces that upheaval of thought, which is the leading characteristic of the age we live in. No longer do men cling, with the tenacity of drowning wretches, to the planks and spars everywhere around them,—the ancient traditions and maxims,—but each one tries to strike out for himself, and many perish in the effort. A restlessness is manifest in every field of thought and work,—in striking contrast to the contentment of a few generations back. The ancient doctrines are being subjected to fresh and close examination,—nothing is accepted on authority,—but every observation and experiment, announced to the scientific world, is eagerly repeated and re-repeated by scores of independent investigators in every corner of the civilized globe. In Medicine, the same tendency is becoming yearly more and more apparent, in spite of the difficulties surrounding every inquiry into disease, from the very nature of its surroundings. The voice of authority is becoming less respected in our ranks, as in those of the other divisions of the great army of science. Even in our regular Society meetings, and in professional consultations, this is plainly to be seen. No longer is it the universal practice to bow with the submission of former years to the dicta of

be of slate, shingles, corrugated iron, tiles, thatch, etc.—the edifice to be lighted in part by gas, electricity, candles, etc.—to be heated by water in one wing, hot air in another, also by open fires, closed stoves, and every other method known,—what a strange edifice it would be when finished! But suppose that, after the contracts were signed, and the foundation in, and the walls well under way, the owner began to diligently study every new idea or device in every department of his temple's construction, and to begin to incorporate each apparent improvement as fast as it came out, necessarily displacing something somewhere to make room for each new discovery; taking out a stone arch here, or a window-sill there, to insert an iron or a composition one; removing a part of his tile roofing, to make room for some new combination of tar or canvas; pulling down a white marble pilaster, to erect in its place a red granite pillar; tearing off a frescoed wall finish, to try the effect of a lincrusta-walton panel in bronze and silver decoration; pulling out the plumbing, to replace the curved traps by right-angled ones; and keeping this up without limitation, how long do you suppose it would take to put the building in a habitable condition, not to think of the time required to finish it, if the man had unlimited means, and his heirs carried out the same policy? Would it not forever stand,—like the San Francisco City Hall,—an unfinished monument of constructive imbecility, to be spoken of as "Smith's Folly," or by some similar designation. Yet that is precisely the method which has been pursued in erecting the temple of Æsculapius, in building the edifice of Therapeutics. There has been no lack of means or material—the evidence for every brick or stone in the structure has been ample—but, unfortunately it has been all of one kind, and that so positive, so enthusiastic, and so authoritative, that the brick went into the wall without its tensile strength being tested, only to be removed a short time after, giving place to another brick, similarly recommended, but exactly of the same kind. "*Cures*" by the score fill the medical journals for a year or two after any new medicinal agent or process is introduced, but we never see or hear of its *failures to cure*. We have never had any means of comparing the *pro* with the *con*, the evidence for with that against, any therapeutical proposition, and thereby making from the comparison a really scientific deduction as to the exact value of the agent or method, and its particular scope or field of influence.

When it is considered that "advance in medicine" really means "advance in therapeutics," it will be easily understood why ours has been so far behind the other sciences; but this reason must be supplemented by another, and that is the overpowering sense of limitation which borders all our advance,—the knowledge that death *must* come to all, and that the very utmost success of either our science or our art must always be wretchedly incomplete; only the postponement of the inevitable for a little while longer, at the best; only the addition of a few more beats to the work of those hearts which—

> "*Stout and brave,*
> *Still like muffled drums are beating*
> *Funeral marches to the grave.*"

This limitation of our possible progress is coarsely expressed by the sneer, as old as Medicine itself, "*Medice, cura te ipsum!*" which has always voiced the contempt felt by the world at large for a science so essentially incapable of perfection as ours is.

What, then, is the measure of progress in Medicine, if it is to ever attain any very exalted place in the pantheon of science? The answer is, Therapeutics! If, as a result of progress in any one or more of the branches of medical knowledge, the average span of human life is lengthened by ever so short a period; or if, while life lasts, it is rendered more free from suffering, by ever so little, Medicine *is* making progress; but the ratio thereof is the ratio of the degree of success which these two attainments bear to-day to that which they bore at any particular time in the past.

However, this reduced to practice, means the progress of Therapeutics, in which I include Prophylaxis, *i. e.*, Preventive Therapeutics. Measured by this standard, can we truly say that the annual advance of Medicine is as great as is claimed for her by those whose minds are dwelling on the progress of the constituent sciences, the chemistry, pathology, bacteriology, biology, pharmacology, and all the other "*ologies*" which together make up the broad-based pyramid of Medicine?

I would answer, No! Let us not deceive ourselves! No matter how great the advance in any one of these branches of Medicine, or in several of them, true Medicine does not advance if Therapeutics stands still. "But," the optimist boomer will say, "every advance in any of its branches must,

be
edif
to b
open
what
that.
and
study
temp
rent
some
takin
an ir
to m
pullin
red g
effect
tion;
right-
how l
a hab
finish
ried ou
the San
structiv
by som
which
in buil
lack of
in the s
all of on
thoritati
sile str
after, g
but exa
medical
or proc
ures to
pro wit
apeuti
son a
agen

year, at least, to him and his heirs forever, with a peerage, and all the honors that a grateful country could bestow, as in the case of Wellington, Nelson and many other great slaughterers.

Even to-day, in England, physicians are barely considered gentlemen, in the full sense of all which that word there conveys. Though a doctor's son, who goes into the church, into politics, the army or navy, the legal profession, the diplomatic career, or who becomes a great railroad contractor, a big brewer, or even a wealthy news-stand proprietor, may reach the exalted rank of a peer for eminent services to his country; the son who adopts his father's profession, however high his rank among his colleagues, can never hope to rank higher than a baronet before his Queen.

And why this invidious discrimination against so noble a career as that of a physician? Because the medical profession is not organized, as the legal one is,—as the church has ever been. And yet, look at the wonderful power for good to humanity which a united profession could wield! Numbering nearly 90,000 in the United States alone, 40,000 in Great Britain and Ireland, 4,000 in Canada, all countries in which the political influence of well-organized bodies of men is very great, the power of such an organism as we could make, if we only would, is almost inconceivable. Think of the hospitals, the asylums, the laboratories, the endowed colleges, the systematic investigations into every question of public health, the control of certain criminals, (as murderers, rapists, etc.,) for scientific investigations, the autopsies on all cases of pathological interest, made by a State pathologist; the effective restriction of the trade in poisons, (as alcohol, opium, etc.;) the prevention of crime by various measures, such as the castration of habitual criminals, the isolation and education of youthful ones, etc.; the prevention of disease by enforced cleanliness, the free supply of water by municipalities, governmental control of sewer-connections with living and sleeping rooms, of the milk supply, domestic animals, etc., including every known vehicle of disease; State control and regulation of prostitution, of marriage, etc.; preventing the marriage of diseased persons, of criminals and the insane,—there is no limit to the possibilities in the power of an organized medical profession in any civilized country in this world.

No longer would rotting relics, in the shape of saints' thigh-

bones, hang exposed in Russian churches, to be daily kissed by hundreds of people, though retaining in their innumerable interstices the germs of contagious disease, to poison the ignorant followers of a lying priesthood. The lips of strong men, healthy girls, and blooming children would have to seek some cleaner object of adoration than a mass of decomposing bone, its cavities swarming with the bacteria of whatever disease was most prevalent, besides those regularly inhabiting them,—such as the bacilli of tuberculosis, of syphilis, diphtheria, small-pox, etc., lurking in the cells of the *holy* relic, awaiting fresh victims among the unsuspecting votaries of a false faith, as any faith must be which inculcates a belief that any virtue, save one of disease and death, could lie in a dead saint's bones.

Another very great obstacle to the progress of Medicine is the almost universal *absence of logical training* in the education of the physician; though there is probably no profession, excepting the legal one, which makes more frequent demands upon sound reasoning than the medical. Daily encountering the most intricate problems which the human mind has ever solved, the physician should be trained from his very youth to reason correctly from cause to effect; to rightly observe facts, estimate evidence, detect fallacies, and arrive at a logical deduction. How few of the men who are daily inserting fresh bricks into the walls of the therapeutical dome of the medical temple know aught about the laws of complex effects arising from a plurality of causes, such as those which we deal with in the phenomena of life masked by the phenomena of disease? How many of these science-builders could even enumerate the operations of a deduction, or explain what is meant by induction and deduction? And yet they have been considered competent to solve the most intricate problems ever offered to the human understanding; for on their evidence, culled from journal articles, Society transactions, etc., has the rank of the many medicaments been decided, and their efficiency as weapons against disease taught in the medical schools for many a hundred years.

Back in the dawn of the historical era, in the great Greek epoch of Phidias, Plato and Hippocrates, medicine was very far behind the other sciences; and yet, when now we read the descriptions of disease left behind by the immortal Greek, we are fairly astonished at the amount of knowledge which he

possessed. No physician, who reads for the first time the treatise of Hippocrates *On the Prognostics*, can fail to wonder at the minuteness of observation, clearness of description, and power of inductive reasoning shown on every page to have been possessed by the author. But, when the "father of medicine" left the field of clinical observation for that of therapeutics, he floundered about in a veritable slough of absurdities, as almost every succeeding therapeutist in after times has done, and as many of them are still doing. Still, it is a wonderful fact, and a matter for serious thought, that out of his 412 aphorisms the 377 pathological ones have "stood the test of the experience of twenty centuries,"* and that his two rules of practice, "contraria contrariis" and "similia similibus," formulate the fundamental principles of the therapeutics of to-day. Well might we almost believe that "men were gods" in those days!

Had the builders of medical science walked in the path marked out by the clinical work of Hippocrates, its progress would have kept pace with the utmost possibilities of its advance; but eras of speculation, of guessing, of striving to account for all things, with the dogmatic dicta of masters and schools, who knew of no other way of keeping up their authority—these, and many other equally injurious methods throughout the centuries which followed—absolutely barred out all acquisition of those multitudinous facts and observations by which alone can a science be built up. At last, however, with the beginning of the seventeenth century, dawned the morning of science, ushering in the experimental method, the bright sun-light, under whose genial beams all knowledge grew up into the full stature of manhood now nearly attained. Galileo, standing up in Italy, the very grave in which science was buried centuries before, sounded the reveille of its awakening, [illegible] began that incessant activity in chemistry, in phy[illegible]ology, botany, etc., which forced into action the fu[illegible] branches of medical knowledge; real work com- [illegible]ysiology and Pathology and Anatomy, and the [illegible]ere laid for a *Science of Medicine* in every depart- [illegible]ng The[illegible]s, which still plodded along in the [illegible] of er[illegible] It certainly seems very strange [illegible]ould [illegible] content, as they were for nearly

[illegible] of Medicine, p. 62.

two centuries after this time, to teach their students that a certain herb was good for a certain disease, because somebody else had said so, while all around them, in every department of science, positive methods were being inaugurated, research was taking the crown from authority, and existing theories being tried in the alembic of experimentation and subjected to the white heat of systematic investigation! Yet, after all, it is not so much to be wondered at when we remember that some are doing so still, and not alone that, but are actually proclaiming that it is the only true path whereby we can traverse the maze of therapeutical knowledge!* All along the centuries of complacent empiricism there were occasional revolts against the prevailing doctrine, and every one of the schismatics went off on an idea of therapeutical reform. But only one ever had any vitality, the rest quickly died out and made no impression upon the therapeutics of the profession at large.

In the middle of the eighteenth century, the illustrious Haller, the father of modern physiology, reached up to the dome of the temple and formulated the doctrine of what is now called *Pharmacology*, or more properly *Pharmacodynamics*, as the only true and scientific basis for therapeutics. In the preface to his Swiss Pharmacopœia (*circa* A. D. 1755) occur the following remarkable directions:

"In the first place, the remedy is to be tried on the healthy body, without any foreign substance mixed with it; having been examined as to its odour and taste, a small dose is to be taken, and the attention directed to all effects which thereupon occur; such as upon the pulse, the temperature, the respiration, the excretions. Having thereby adduced their obvious phenomena in health, you may pass on to experiment upon the sick body."

Forty or more years after these rules were laid down *ex cathedra* by Haller, the central idea contained in them was incorporated, as one of the main pillars, in a medical edifice then being erected in Germany. In the course of construction this pillar became so buried beneath a superstructure of palpable absurdities, that the medical profession, in its anxiety to steer clear of the whole mass, almost forgot the humble corner-stone, appropriated from the teachings of one of its own greatest chieftains. While, however, the masses of the profession, blinded by its prejudices, turned away from everything which savoured of drug experimentation, a few in every

**Hartshorne*, Essentials of Medicine, 5th edition, p. 24.

country were quietly working on the lines of the Hallerian dictum; and as a result of their labors the present generation has seen the development of an idea announced 130 years ago, but now inspiring the minds of teachers and students all over the civilized world.

Now, the *opprobrium medicinæ*, therapeutics, is making rapid advances on Haller's lines. Aided by the labors of the chemists, who have given us the active principles of plants, competent observers all over the world are working out, by positive experimentation, the powers of drugs, and rapidly building up an accurate and positive Materia Medica, instead of the mass of guess-work, speculation and quotation which formed the Materia Medica of the past.

It has been the fashion, in some lay circles, and even among some half-educated professional cliques, to echo the "*quack quack*" of the charlatans, the claim that our advance in therapeutics and physiological drug-experimentation is due to the influence of the so-called homœopathic school. There never was a more fraudulent claim set up, not even in your mining contests or Spanish land-grant history. Those who advance the claim, and those who support it, point to the decreased dosage in regular practice during the last twenty-five years, to our present activity in drug-experimentation, to our use of minute granules in place of large pills, and to the admission of milk-sugar triturations into the last edition of our pharmacopœia, as evidence for their proposition. But our decreased dosage is chiefly due to the chemists, who, by extracting the alkaloids* of plants, have enabled us to administer, in a minute and tasteless granule, all of the active drug which formerly required a tablespoonful of some nauseous infusion or decoction to carry it into the organism. Again, the introduction by the regular pharmaceutists, of the class of preparations called *fluid extracts*, so greatly concentrated as compared with the older tinctures, enables us to use the same medicinal energy with a drop to-day which necessitated the employment of half a teaspoonful twenty years ago. Moreover, as Haller's work of drug-experimentation goes on and becomes more accurately defined, we ascertain the fact that drugs have different actions in different doses; and hence we are now

*Morphine, discovered in 1817; Strychnine, in 1818, and Brucine in 1819; Quinine, in 1820, and so on.

using drugs in small doses for purposes for which they were never used at all in olden times. But such new uses of smaller doses does not decrease the larger dosage in cases and for purposes for which only those larger doses will suffice. As to our activity in drug-experimentation, instead of following the homœopaths, we are simply following our own masters on a line which was inaugurated before Halmemann was born, and which, but for the obloquy with which he invested it, would have been steadily pursued these past 130 years. Homœopathy, instead of promoting physiological drug-experimentation, retarded it fully half a century, by causing it to be associated with so much of folly, so many absurdities. Lastly, as to the milk-sugar triturations, they too are no invention of homœopathy, but were in common use among the Arabian physicians of the thirteenth century, and were well known in England 100 years ago. Their subsequent adoption by homœopathists invested them with the character of a badge of sectarianism, just as the straight collar, fastening behind, marks the Roman Catholic priest, and the broad-brimmed silk hat an Anglican bishop. Even at the present day, if one of us were to dispense a trituration in his office, using the small powder papers, and a small envelope to cover them, 99 out of 100 of the laity would instantly class us as homœopathists. So superficial are people in forming opinions, and so influenced by appearances in the most important matters of life! But what are the facts? In England and this country a trituration has been official for many years, Pulvis Doveri, which, though called a powder, is in every respect essentially a trituration, containing as a diluent a hard substance (Potassium Sulphate or Sugar of Milk), in order to break up and finely divide the particles of the active ingredients. Another trituration, official in both countries, is the Pulvis Elaterini Compositus, a regular Sugar of Milk trituration, of 2½ per cent. strength there, 10 per cent. here. Less prejudiced against a name, our American revisers boldly gave this preparation its proper title when inserting it into the Pharmacopœia; the English revision still retains the name "Compound Powder," though it has but the one active ingredient, the Elaterin. The insertion of the class *Triturations* into our Pharmacopœia eight years ago was simply the recognition of a very old class of preparations, which had dropped out of general use for many years, but which were being revived in practice, as a convenient and efficient method

of dispensing. Many drugs, as has been well known from remote times, are rendered more active by grinding with a very hard diluent, which breaks up their particles into minute ones, and thereby the drug is presented to the absorbent vessels in the best possible shape for endosmosis through their walls and prompt conveyance to the blood, and the liability of its passing out of the intestinal canal with the excreta is lessened. In this there is not the slightest hint of accession to the homœopathic idea of *increased potency by prolonged trituration and attenuation of the original drug*, which is the *opprobrium* placed by that sect on a very useful preparation. But we must not forget that they have never had a monopoly of triturations, however they may claim the name. Ever since Pepsin has been used medicinally it has been prepared and sold as a trituration by our druggists. Lacto-peptine, Saccharated Pepsin, and all dry preparations of this ferment, are Sugar of Milk triturations in fact, if not in name. But, even if we were indebted to the homœopaths for these preparations, our use of them would in no wise commit us as favoring a system which, to those who understand it and retain their mental faculties, is a mere hash of absurdities, only retained by its own votaries for sake of the influence which a sectarian name and position always exerts upon the people. If triturations are a good form for administering certain drugs (and it is a fact that they are), why should we deprive ourselves of them because they happen to be made a badge of sectarianism through popular ignorance? Fortunately we are getting out of our baby clothes and over all such wretched puerility, and are now free to use triturations without incurring professional dishonor.

It is not in such matters that homœopathy has influenced or will influence the medical profession. It has been of service, however—a service chiefly negative in character. It has taught us again the old lessons of all ages, to wit: that nature is the real physician, and that the living organism is itself competent to cure all its curable disorders, which it will do if simply let alone, unhindered by the misplaced zeal of those who would bend nature to their views, instead of humbly following in her footsteps. This is the great lesson which professional medicine requires to be re-taught every century or so—to bring it down from the pedestal on which human pride and educated ignorance exalts it. For the teaching of this lesson was homœopathy sent into the world, and it will only

depart when its mission is fulfilled and that lesson has been well learned.

There are, alas! too many proofs about us on every side that we are not learning the lesson of nature's power. Such, for instance, are the footprints we meet occasionally in the professional sand of the drug store, recent signs that the demon of poly-pharmacy is not dead yet, but even in this scientific age he lurks around, seeking whom he may devour. I have one of his hoof-marks here, a giant footprint too, big enough to frighten the Robinson Crusoes of the profession clear off the dry land and send them drifting to destruction on the ocean of discouragement. It was prescribed, says the *Canada Medical and Surgical Journal*, of May, 1883, by one of their most eminent local physicians, and was dispensed by a Montreal druggist. It reads thus:

R. Potassii Bromidi, 2 drms.
Potassii Chloridi, 2 drms.
Potassii Iodidi, 2 drms.
Potassii Acetatis, 2 drms.
Potassii Bicarbonatis, 2 drms.
Ammonii Chloridi, 2 drms.
Ammonii Bromidi, 2 drms.
Extracti Colombo, 2 drms.
Extracti Gentianæ, 2 drms.
Extr. Taraxaci, 2 drms.
Ferri Pyrophosphatis, 2 drms.
Syrupi Ferri Iodidi, 1 oz.
Tinct. Valer. Ammoniæ, 1 oz.
Acid Phosph. Diluti, 1 oz.
Pepsini, 30 grs.
Tinct. Cannab. Ind., ½ oz.
Tinct. Digitalis, ½ oz.
Syr. Calcii Lactophosphat., 2 oz.
Glycerini, 2 oz.
Syr. Tolutan, 2 oz.
Tinct. Cinchonæ Comp., 2 oz.
Liq. Arsenicalis, ½ drm.
Tinct. Arnicæ, ½ drm.
Extr. Nucis Vom., 6 grs.
Extr. Conii, 6 grs.
Extr. Belladon, 6 grs.
Extr. Hyoscy, 6 grs.
Chloroformi, 10 drops.
Quininæ Sulphat, 1 drm.
Alcoholis, sufficient to make 16 oz.

Sig.—A dessertspoonful thrice daily, in milk, after each meal.

You may say that this is an extreme case, and not illustrative of general professional practice. It is to be hoped that such is the case, for the sake of poor sick humanity. But here is one, prescribed three weeks ago, in the city of San Francisco, by a physician of large practice, for a case of remittent fever :

R. Quin. Sulphat., 1 drm.
Ac. Nitro-hydrochlor., 2 drms.
Tinct. Belladon., 4 drops.
Tinct. Nux. Vom., 20 grs.
Liq. Potas. Arsenit., 20 grs.
Elixir Cinchonæ, 3 oz.
Elix. Lactopeptine, mix. To make 6 oz.
Two drachms in water every four hours.

No wonder that therapeutics languishes ! We might well despair of it entirely, did we not know that, after all, the *tendency* of the present age is, to quote Dr. Phillips, " towards mono-, rather than poly-pharmacy, and prescriptions with the orthodox 'adjuvans' and 'corrigens' are less frequently seen than formerly."*

Progress in Therapeutics.

In order that we may form a clear idea of the position of general medicine, it is necessary that we look back over the work of the past year or two and see what is being done on the line of therapeutics, including, of course, the studies of the action of drugs, so essentially preliminary to their employment as remedies.

The most prolific work, of late, has been upon the so-called *New Remedies*, which are crowding into the market faster than they can be examined and reported upon. Especially active have the pharmacologists been with regard to those curious products of the chemical laboratory which are built up, as it were, by the substitution process, by which various organic radicals are substituted for one or more atoms of hydrogen in the wonderful hydro-carbon compounds, many of which are constituents of coal oil. The action of these substitution products is being closely worked out, and broad deductions being made therefrom, so that in very many instances the therapeutical value and even the definite application may be foretold, and have been, with perfect accuracy. Such prophetical deter-

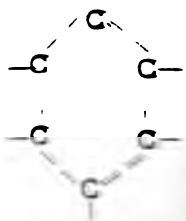
* *Materia Medica and Therapeutics*, by Phillips, edited by Piffard, N. Y., 1879, p. 17.

[illegible]

[illegible] the carbon atoms are supposed to [illegible] an open chain with their tetrad [illegible] thus

[illegible]

[illegible] in which the carbon atoms are supposed to assume the form of a closed chain or ring, with their tetrad affinities arranged thus



These two grand divisions are subdivided into various groups, some of which include many old friends of the physician, well known and highly prized, while others are new comers into the medico-chemical arena.

That we may clearly understand the [illegible] which the new agents bear to the old ones, let [illegible] the membership of these carbon gro[illegible]

[illegible] Pharmacology, etc., thi[illegible]

Fatty Series of Carbon Compounds.

ple Compounds—Carbonic Acid (CO_2), Carbon Bisulphide (CS_2), Hydrocyanic Acid (HCN), Acetic Acid ($C_2H_4O_2$), etc.

carbons of the Marsh-gas (CH_4) *series*—Benzin, Vaselin (Petrolatum), Paraffin, etc.

hols Hydrates of the Radicals),—Methyl, Ethyl, Propyl and Amyl Alcohols, also known as Wood-spirit, Wine-spirit, Potato-spirit, etc., respectively.

ydes, (Alcohols minus H_2)—Acetic Aldehyde, Paraldehyde.

(Aldehydes minus H, plus a radical)—Hypnone.

Simple (Oxides of Alcohol-radicals)—Ether, *i.e.*, Ethylic Ether.

Saline, (Salts, as it were, of Alcohol-radicals)—Ethyl Sulphate, Ethyl Acetate (Acetic Ether), Ethyl Nitrite (Nitrous Ether), Amyl Nitrite, Nitroglycerin.

rbons of the Terebinthene ($C_{10}H_{16}$) *series*, including the numerous isomerides contained in Oil of Turpentine, and their derivaatives, as Terebinthene, Terebene, Terpin, Terpinal, Camphene, Caoutchene, etc.

Compounds, (like the Haloid Salts of Metals)—Ethyl Bromide (Hydrobromic Ether), Ethyl Iodide (Hydriodic Ether), Methylal (Methylene Di-methyl Ether), Chloral, Butyl-chloral, Bromal, Methylene Bichloride, Chloroform (Di-chlor-methyl-chloride), Iodoform (Formyl Iodide), Iodol (Tetra-iod-pyrol), Urethane (Ethyl Carbamate).

Aromatic Series,

substances originate in the six-atomed carbon ring fully by H, known as the Phenyl Hydride or Benzene Ring (C_6H_6) by substitution (instead of addition), as follows :

HO (Hydroxyl) = C_6H_5OH, Phenyl Alcohol, *Carbolic Acid.*

NO_2 (Nitroxyl) = $C_6H_5NO_2$, Nitro-benzene.

NH_2 (Amidogen) = $C_6H_5NH_2$, Amido-benzene, *Anilin.*

$CO.OH$ (Carboxyl) = $C_6H_5CO.OH$, Phenyl-formic (*Benzoic*) *Acid.*

$(HO)_2$ (Hydroxyl)$_2$ $C_6H_4(OH)_2$ { Ortho-di-hydroxy-benzene* *Pyrocatechin*; Meta-di-hydroxy-benzene* *Resorcin*; Para-di-hydroxy-benzene* *Hydroquinone*

$(HO)_3$ (Hydroxyl)$_3$ = $C_6H_3(OH)_3$ Tri-hydroxy-benzene, *Pyro-*

O and $CO.OH$ = $C_6H_4.OH.CO.$ $(HC_7H_5O_3)$ { *Salicylic Acid** ; Oxy-benzoic Acid ; Para-oxy-benzoic Acid

---

ring only in the positions of the substitutions in the Benzene ring.

$C_6H_6—CH+N=C_5H_5N$, *Pyridine.*

$C_5H_6+C_5H_6N=C_9H_7N$, *Chinoline.*

$C_6H_6+C_6H_6$ superimposed $=C_{10}H_8$, *Naphthaline.* [The two Benzene groups being superimposed on one side of each, we do not get $C_{12}H_{12}$, but $C_{10}H_8$.]

Other compounds of the same series, and derivatives of the above, are the following named substances, the list comprising most of the new antipyretics and analgesics, viz.:

$C_{10}H_7OH$ = *Naphthol.*

$C_{20}H_{19}N_3.HCL$ = Rosanilin Hydrochlorate, (*Fuchsin*).

$C_{10}H_{13}NO.HCL.H_2O$ = Hydrochlorate of Oxy-ethyl-chinolin-hydride, (*Kairine*).

$C_{20}H_{18}N_4O_2$ = Di-methyl-oxy-chinicin, (*Antipyrine*).

$C_6H_5C_2H_3O.NH$ = Phenyl-acetamide (*Antifebrine*).

$C_6H_4.CO.SO_2.NH$ – Benzoyl-sulphonic-imide, (*Saccharine*).

There is an erroneous idea prevalent that these new products of the chemical laboratory are obtained from coal-tar and that they exist therein. An abstract of the process by which the last-named substance is prepared will serve to illustrate the methods employed in "coal-tar chemistry," so called. Starting with *Toluene* (Methyl-benzene, $C_6H_5CH_3$), a hydrocarbon found in coal and in coal-tar, also in wood and in Rangoon tar, (a native mineral oil), and also one of the constituents of commercial Benzene, it is acted upon with Sulphuric Acid at 212° F., by which para- and ortho-toluene-sulphonic acids are formed. The sodium salts of these acids are next prepared and then converted into sulphonic chlorides. The ortho-chloride is treated with ammonium carbonate and thereby changed into an *amide*, which is oxidized and finally treated with a dilute mineral acid, *Saccharine* being precipitated. Consequently this interesting substance, possessed of such extraordinary sweetening power, is not, as many believe, obtained from coal-tar, or coal-oil, but is a laboratory product, formed as a result of numerous reactions, starting with a hydrocarbon obtainable from coal-tar and from several other sources as well.

That these bodies have a strong relationship to the vegetable alkaloids has been for some time suspected, and is becoming

more and more apparent as new facts are developed and new derivatives formed from them. For example: *Chinoline* ($C_9 H_7 N$) may be obtained from *Quinine* ($C_{10} H_{12} N O$) by the destructive distillation of the latter alkaloid with potassium hydrate; and it is also found in coal-tar, and may be made synthetically by heating Anilin and Nitro-benzol with glycerin in the presence of a dehydrating agent. So also *Morphine*, treated with H Cl acid and heat under pressure, gives up $H_2 O$ and becomes Apomorphine, a very different article indeed; but if treated with Nitric Acid, or if heated with water under pressure, it takes up $H_2 O$, and yields Tri-nitro-phenol (Picric Acid), one of the Benzene derivatives.

PHARMACOLOGICAL DEDUCTIONS.—From the numerous experiments made upon animals and man with the new members of these groups, some valuable deductions have been formulated and are stated by Brunton as follows:

The most marked action of the lower members of the

Fatty Series is stimulation and anæsthesia of the nerve centres, also sensory-paralyzant.

Aromatic Series is antiseptic and antipyretic, and also motor-paralyzant.

In the first group we find that

Simple Carbon Compounds, as $C O_2$, $C S_2$, $C Cl_4$, all tend to paralyze the nervous system in the definite order of (*a*) thought, (*b*) sensation, (*c*) reflex action.

Carbon-Chlorine Compounds are powerful muscular poisons, destroying the contractility of both voluntary and involuntary muscular fibre.

C H O Compounds are generally anæsthetic (alcohol, ether), some being irritant (acetic acid).

In the Aromatic Group we find that very slight changes in the chemical constitution of some members cause very great modifications in their antiseptic powers, even isomeric bodies differing greatly in this respect; for example:

Salicylic Acid is antiseptic, but its Sodium Salt is not, nor are the isomeric bodies, meta- and para-oxybenzoic acids.

Furthermore, while the members of this series especially affect the motor nerves (as the fatty series does the sensory), producing tremor, convulsions and paralysis, great modifications are observed in their action according to slight changes in their composition, thus:

H O (hydroxyl) added to the Benzene ring, intensifies convulsant action, *e.g.*, Phenol.

N added, as in the Pyridine and Chinoline series, tends to paralysis of respiration.

H, in the C H N series, intensifies the physiological action in direct ratio as to its quantity, *e.g.*, Chinoline (C_9H_7N), Coniine ($C_8H_{15}N$), Nicotine ($C_{10}H_{14}N_2$).

Doubling the bases of the Pyridine series by condensation makes the compound more active and the action entirely different from that of the simple base.

Quinine Substitutes.

As the germ-theory of zymotic disease has grown in favor, the great therapeutic desideratum has seemed to be an agent possessing decided antipyretic power without a depressant action upon the heart or an irritant one upon the stomach; also a safe antiseptic, which will destroy or render inactive microbes, without injuring the organism containing them. Hitherto *Quinine* has been the only substance approaching these requirements in any marked degree; but its cost, the difficulties attending its administration, and its injurious action so often seen upon the special senses and the stomach, have been great drawbacks to its free employment. The fact that a very slight alteration in the chemical composition of the members of the Benzene series of Carbon compounds makes a very great change in their physiological actions, has been the stimulant factor in the hunt of the physio-chemists for an artificial compound which would fill the above requirements and be a perfect substitute for quinine. The search has been a long one, and is still going on, the modern "philosopher's stone" not yet being found, though several agents have, from time to time, been brought forward and each one highly praised as the long-sought specific. But as one after another came into general use it passed through very much the same history as its predecessor. At first lauded to the skies, it gradually developed defects of various kinds, and gradually lost favor, so that at present there is no one which can be said to retain the position at the head of the group of internal antipyretics and antiseptics so long occupied by quinine. The principal substances which have been on trial in this connection are the following named, the chemical relations of which I already discussed, viz.:

Chinoline	*Resorcin*	*Antipyrine*
Kairine	*Pyrocatechin*	*Acetanilide*
Kairoline	*Hydroquinone*	*Naphthaline*
Thallin	*Salicylic Acid*	*Saccharine.*

Of these the last two are valued chiefly as antiseptics, and the last named has another and a valuable quality of its own, which will be referred to in another place. The others have been on trial as antipyretics, some of them for several years, and, one after another, have been deposed from the position of the ideal antipyretic at first claimed for them, chiefly on account of the dangerous depression, even collapse, which they produce, each one in some degree. *Chinoline*, for example, induces severe rigors and extreme depression; *Kairine* causes cyanosis, nervous disturbances, severe rigors and collapse; *Resorcin* excites greatly the cardiac vascular supply (Cæsari), besides causing an extreme degree of diaphoresis, and having but a short antipyretic period; *Salicylic Acid* and its salts greatly depress the cardiac action and lower the excitability of the nerve centres to a dangerous degree. The contest has narrowed down to a question between *Antipyrine* and *Acetanilide* (Antifebrine), and on account of the importance of this class of agents in practical therapeutics I have thought it well to review the characteristic features of these two members thereof.

[*At this place the original report contained a review of the physiological action and therapeutics of Antipyrine, Acetanilide, and their congeners; followed by a discussion of the modern therapeutics of several diseases, notably Phthisis, Diabetes, Diphtheria and Gastric Cancer, which I have omitted at the request of the Committee on Publication, in order to reduce the paper to a convenient size for publication. For the same reason I have also applied the scissors to the whole of the portion devoted to Medical Literature.*—SAMUEL O. LEWIS POTTER.]

Diseases of the Heart

Diseases of the heart are becoming of greater importance every year, by reason of their increasing prevalence. A generation ago, if one can judge from current journals, it was quite an event for the general practitioner to have a case of valvular disease; and to be thoroughly familiar with the various murmurs and the corresponding valvular lesions, or with the

physical signs of cardiac disease was a professional accomplishment of no ordinary magnitude. Many eastern clinicians have recorded their remembrance of how rarely they found a well-marked case of heart disease in their clinics before the war: and it is well known that it was his experience in military cases during the war which led Da Costa to the recognition of a new disease in medical nomenclature, the *Irritable Heart*, which he introduced into medicine about 1867.

A recent report of the Boston Board of Health states that "deaths from heart disease have increased in number to a startling extent of late years, and no satisfactory reason can be assigned for it except the general one that we live faster than we did a quarter of a century ago. In 1850," I still quote, "the proportion of deaths from heart disease to the total number (of deaths) was 1.42 per cent. In 1855 it had increased to 2 per cent., in 1866 it was over 3 per cent., in 1874 it had jumped to over 4 per cent. It had increased more than another 1 per cent. in five years from that time, and last year (1886) it reached 6.26 per cent. of the total mortality." Counting the population of the United States at 50,000,000, and assuming that the Boston average would fairly apply to the whole country, we obtain the enormous number of 3,130,000 deaths annually from heart disease in the United States alone.

Such figures involuntarily suggest to the minds of both lay and professional persons the query, "What is the cause of such an alarming state of affairs?" No doubt the effect of four years of war, with its attendant horrors, upon the hearts of thousands of men who afterwards became fathers of children and transmitted weak hearts to their offspring, has had much to do with the increase. But there is another and a far more potent reason, viz.: That we live in a fast era, one in which the machinery of organic life wears out at an apparently early age—only *apparently* so—for now-a-days the youth of 20 has practically lived full 40 years, both mentally and physically. If the number of actual heart-beats could be obtained in every case we would doubtless find many a heart which has done its full life work by the time that its possessor has scarcely entered upon his early manhood. Excitement of every kind occupies the lives of our young men and women from the very cradle, and when the weary heart and worn out brain rebel, and the whole system succumbs to the [illegible] nulation is resorted

to and by alcohol, tobacco, caffeine, and other cardiac and nervous stimulants, the wearied organs take on new force again and again, until some day an attack of so-called "nervous prostration" sounds the first alarm and the over-strung machine breaks down for a time. Then, perhaps, the frightened man or woman gives up for a year to *rest*—and comparative restoration follows. If here a halt is permanently called, the restoration may be perfect in course of time, and the individual may live on to a good old age, hale and hearty as in the olden time. Too often, however, the warning is disregarded, the patient plunges afresh into the same vortex of dissipation as before, and an injured heart, from strain or worry or constant stimulation; or a softened brain from repeated and re-repeated congestion of its circulation; or a paralyzed side or extremities from the escape of blood through degenerated arterial walls upon the cerebral centres; all these, and many more, tell the tale of a "short life and a merry one." Not infrequently, though, the "merry" life ends in a suicide's grave, when remorse arrives upon the final scene of a mis-spent life.

It is a very fashionable etiology that which ascribes nearly all valvular lesions to an acute rheumatic endocarditis; but in daily work in the clinics, the dispensaries, hospitals, etc., we find a large proportion of cases presenting valvular lesions which afford no history of rheumatic origin. The modern instrumental methods of physiological investigation,—the manometers, the kymographs, the angiographs and plethysmographs,—the hæmadromometers, hæmatachometers, thoracometers, etc., etc.,—have brought us into a mechanical manner of thinking in regard to physiological processes, especially when those of the heart are under consideration. Hence we naturally prefer the most positive etiology, and when thinking of the causes of heart disease are by far too apt to go back to a very ancient rheumatism instead of a constantly acting though recent nervous factor.

And yet, when we think of the wondrous ramifications of even one pair of nerves, the vagi, and of the correlation of function thereby produced between the heart and almost every other internal organ of the body, it would seem more natural to look to nervous influence for most of the primary factors of cardiac disease. That constant worry, intense grief, and in fact all the depressing emotions, operate to produce impairment of the appetite and lowered nutrition; also that emo-

tions of the opposite character lead to results of the contrary nature; are matters of such common observation as to be axioms in clinical medicine. That they will directly cause not only functional but organic disease of the heart is a postulate which is on the high road to being universally recognized. Sexual excesses, severe and prolonged muscular exertion, as rowing, and other athletic excesses—I cannot call them "exercises"—occupations necessitating severe muscular exertion, any extreme muscular effort requiring the holding of the breath in a forced inspiration (as lifting a very heavy weight), so as to force down the diaphragm, and with it the pericardium, its attachments, etc.; any unusual and supreme mental effort, as often made in mutinies, sieges, shipwrecks, escapes from prison or from capture in war, etc.; the habitual use in excess of cardiac stimulants, as alcohol, tea, coffee, etc.; fevers of high body-temperature, especially rheumatism, measles, scarlet and typhoid fevers; all these are capable of producing functional cardiac derangement, which, long maintained, may result in organic cardiac disease. How this is accomplished is tersely stated by Da Costa, in the following words:

"The irritable heat just described, as indeed other forms of functional heart disorder, *may pass into organic cardiac disease* by the constant over action of the heart. And overaction or strain may also . . . . lead to valvular affection, sometimes by preceding hypertrophy, at other times by a slow process of inflammation or disorganization engendered at or near the seat of the valve."—(*Medical Diagnosis*, 5th ed., p. 368.

The part played by typhoid fever in the production of angio-cardiac disease has only recently received the attention of writers on etiology. Some studies made in France during the past year by MM. Landouzy and Siredey* seem to have established some very important facts in this connection. According to these observers, the typhoid-fever poison may not only induce acute cardiac changes, resulting in the heart-failure which so often occurs in this disease, but may set up in the walls of both the heart and the arteries a tendency to a chronic, progressive, obliterating endarteritis, which, as years go by, impairs the nutrition of the heart, the arterial walls, and the viscera supplied thereby, gradually bringing about cardiac hypertrophy, aortic dilatation, corded arteries, sclerosis of the liver, kidneys and other viscera, with various functional derangements, as palpitations, angina and abnormal heart-

* *Revue de Medicine, Sept. and Nov., 1887.*

sounds. These results may not become apparent for many years after the original disease, but are no less caused thereby; so that a man may have typhoid fever at 20, followed by some cardiac trouble at 30, a nephritis at 35, and a hepatitis or hepatic abscess at 40. The base of these views consists of a series of 15 cases, in most of which the development of the various pathological processes was steadily observed during a number of years, and are reported at great length and in close detail.

While, however, statistics prove the steady increase of heart disease, as compared with the general mortality list, a section of the profession has been urging a somewhat novel view regarding the comparative non-importance of cardiac murmurs as evidences of organic lesions.

At the opening of the British Medical Association meeting, in 1881, Sir Andrew Clark gave an impetus to the discussion of this subject by a paper, in which he took strong ground for a more favorable prognosis generally in cardiac affections, instancing numerous cases which had developed apparently organic murmurs in early life, and afterwards lost them; also many others which lived to the allotted term of human life with hearts which presented all the physical signs of serious organic lesions. It is too much the inclination on the part of physicians to give a gloomy prognosis as soon as they clearly recognize an organic murmur, and there is little doubt but that the impression thereby made upon the patient's mind has a powerfully depressing influence on the heart itself, an organ which, more than any other, is susceptible to the action of the emotions.

This subject has been recently revived in the New York Academy of Medicine, and was thoroughly discussed last winter by Loomis, Smith and other representative physicians of large experience in cardiac disorders,—all of whom thoroughly endorsed the rule, too often forgotten in practice, and seldom impressed on the mind of the student, viz.: that *the presence of a murmur within the heart should never be accepted, per se, as a positive sign of cardiac disease*, for murmurs exist without cardiac disease, and *per contra*, grave cardiac disease may be present and no murmur produced. This would be news to many of our practicing physicians, ay! to many of our recent graduates; for there is nothing which the student carries away from his college course with greater intensity than the remembrance of the murmurs he has heard at the clinics, and the various

regurgitations and stenoses which he was taught to associate with them.

The tendency of teaching has been to exaggerate the importance of these murmurs, by themselves. It is so rarely in medicine (compared with surgery) that we get hold of some really definite, tangible symptoms or phenomena, that when we do meet such a one we naturally are only too happy to get away from the general symptoms common to so many diseases,—the fever, the nausea and vomiting, the headache, the pains in the back and limbs, the numerous evidences of illness, but of no particular illness—when we can get away from these and can take up so positive a matter as a blowing or churning cardiac murmur, heard with greatest intensity at one of the four regular murmur-sites upon the chest-wall, we are very apt to overrate its importance. If, then, we should express our estimate thereof, if not by actual words to the patient, by our manner, or our evasion of a direct answer, we should convey to his mind that we recognize the evidences of heart disease, we have practically signed his death-warrant, or pronounced his doom, in many cases. No matter how you qualify your expressions, or, seeing the effect you have produced, try to explain them away, the more earnestly you do so the worse the result, for the sick man will look upon it all as confirmatory of his own first impression, thinking that you are trying to "break the news" to him, as it were,—or to "let him down gently,"—to use the popular expressions. The effect on the patient is generally most disastrous, and often the direct cause of death.

In every physician's experience, if thought over, there will be found ample proof of this before he has been in practice very many years. Even in the army it is not a very rare occurrence to find a superficial diagnosis the cause of mental worry, and that again the direct cause of serious cardiac disturbance.

One such case was related to me by an Army surgeon of long experience at frontier posts, with their large population of officers, their wives and children, soldiers, laundresses and their numerous progeny, Indians, half-breeds, and all classes of humanity, making these posts, in time of peace, the best school of practice for a young physician that I know of. In the instance referred to, a young lady, who never had experienced any serious illness, was away from her eastern home, visiting a friend, one of the ladies at the military post where my friend was stationed. A certain lady in the regiment was a dabbler in medicine, who read everything in the line of quack advertisements, medical almanacs, marriage guides, etc., which fell across her path. This would-be female doctor, who

bored the surgeons of the post to death with her half-professional conversation, told the young lady in a very solemn voice that constant yawning was a recognized symptom of heart disease. As the girl was just then attending a good many parties, hops, etc., and losing more or less sleep in consequence, she often caught herself yawning during the day-time. Alarmed at the "wise woman's" statement, she consulted the post surgeon, and had him examine her heart, which he did, telling her that she had an endocardial murmur, but that it didn't amount to anything, and would soon leave her if she took more care of herself. Back to her medical friend went the light-hearted girl, with the report of the surgeon. "An endocardial murmur," repeated she, "that means some organic affection, my dear! and organic disease is incurable, and Doctor Jones was trying to undo what he first said when he told you it would leave you. Just like him! a regular old granny, who forgot all he ever knew years ago. But I'll get a stethescope from the hospital steward, and I'll listen to the murmur myself;" which she did, and decided it was an organic murmur, and in her own mind concluded that the girl might die at any moment.

Soon the poor girl began to suffer from the most distressing palpitations, accompanied by paroxysmal pain in the precordia, a considerable degree of dyspnœa, etc.; and as each symptom developed it was hailed with delight by her elder friend, who would go to her books, and with the comforting "I told you so," would hunt up new symptoms of cardiac disorder, which would faithfully appear upon the poor girl a few days after their explanation to her. After some time she went with her friend to a homœopathic physician "down town" in the adjacent city, and he recognized the case as one of pronounced valvular disease, but promised a cure by the potency of cactus, spigelia, or some other vial of milk-sugar pellets, labeled with the name of a drug. The girl was now very ill indeed, all her symptoms became intensified, and the post surgeon himself began to look upon the case as one of organic disease.

At this juncture, the lady whose guest the young lady was, drove into town and consulted another physician (a regular) upon the subject, by whom she was advised to bring the patient down for a thorough examination on a certain day, when the two other physicians, who with himself formed the local Board of Pension Examiners, would be at his office, when all three would try what impression could be made on her by a contrary opinion.

The plan was carried out, and the three physicians gave it as their joint opinion that the murmur was purely functional, and due to anæmia, and that there was no organic disease present. The girl rapidly recovered after this, under tonic medication, and in a few months was quite herself again, even the murmur disappearing under the influence of iron, manganese and strychnine, good food and early hours. An interesting feature of the case was that it continued for years to be referred to by the homœopath, in the belief that his medicine was taken, as an illustration of how an organic murmur could be removed by Spig. 200. He always laid great stress upon the diagnosis, which, he said, could not be gainsaid, as it was made by a regular army surgeon.

Many of the rules laid down for the differentiation between organic and hæmic murmurs are undoubtedly wrong, and have to be gradually distrusted and finally laid aside, as the physician gains the personal experience in these matters which practice alone can give him. Among such is the one so commonly taught in the schools and text-books, that anæmic murmurs are produced only at the aortic orifice and are therefore heard with maximum intensity only at the base of the heart. In anæmia we often find the cardiac force lowered to a very great extent, so that the pulse is extremely feeble. It is easy to imagine how so feeble a ventricle would fail to close the mitral valve, and permit a certain amount of regurgitation at that orifice, which would give a murmur having all the characteristics of a mitral regurgitant murmur, and be heard loudest at the apex. As a matter of fact, however, hæmic murmurs are heard as often at the apex as at the base of the heart (Loomis, etc.); and are also plainly recognized all along over the body of the ventricle, according to one observer of high rank (A. H. Smith) even more clearly than over either orifice.

Another old rule is, that the mitral regurgitant murmur is only transmitted to the axilla and the angle of the scapula when of organic production; so that, as a functional murmur at this orifice would not be so transmitted, there is in this rule an unfailing means of deciding between them in any particular case. This seems absurd upon its face. The transmission of any sound, in any situation, and along any medium, depends entirely upon the relation existing between the intensity of the sound and the conducting power of the medium. A very loud mitral regurgitant murmur, whether functional or organic, would be so transmitted, and especially if the lung tissue behind it were more or less consolidated; a point which is usually ignored in the books, but one of very great practical value, as I have always found in making a physical examination of the chest, in determining as to the existence of consolidation of pulmonary tissue and its degree. There are many cases of pulmonary disease in which there is more or less retraction of the lung from the chest wall (pre-existing atrophy, fibroid lung, etc.), and when percussion is made in such cases we often find most excellent resonance, even hyper-resonance perhaps, where we expected to and should find dulness. But if we listen for the heart sounds high up over the [illegible] of the right lung, or half

way around the right chest, just below the axilla, and there find them coming clear and loud to the ear, we may depend upon that intervening lung tissue being consolidated in a greater or lesser degree, even though percussion should fail to bring out an impaired resonance note over it. But this is a digression!

There are no positive means of differentiating between an organic and a non-organic mitral regurgitant murmur by the aid of the murmur alone. We must take all the symptoms present, subjective and objective, and every physical sign to be had, into consideration, before making the diagnosis of organic heart disease. This is generally agreed upon now. One of the most important aids in the diagnosis is the existence of a change in the size of the heart, which, if present beyond doubt, and associated with a murmur answering the requirements, indicates beyond chance of error the existence of organic disease.

That endocardial murmurs may be produced by interruption of respiration was shown by Potin a few years since; and it is more than probable that most of the murmurs heard at the base, unaccompanied by any other evidence of cardiac disease, or any signs of anæmia, are of this kind—the so-called *cardiac respiratory murmurs.*

The real value of a true endocardial organic murmur is, that it enables us to locate a lesion at one particular orifice, which lesion, however, is established by other evidence than that of the murmur. All experience, clinical and physiological, agrees that no definite ratio exists between the degree of gravity of a valvular disease and the characteristics of the murmur accompanying it; for a very loud murmur may be associated with a very small amount of disease, and, on the other hand, very extensive valvular lesions may exist without any accompanying murmur whatever. Moreover, the existence of a persistent endocardial murmur is by no means inconsistent with a long and fairly healthy life, many such cases being on record, and many more now known, who carry such murmurs along through life, denying themselves very few of its pleasures and bound by no irksome rules of living.

Hence, in teaching, more stress should be laid upon the undoubted fact that *Endocardial Murmurs and Chronic Valvular Disease of the Heart are not synonymous terms;* and, unless we would become direct murderers, whose proud mission it is to

save life,—we should give the most favorable prognosis possible in every case of heart disease where no great interference with the circulation is manifested, and should never declare the existence of organic disease of the heart simply because we have heard an endocardial murmur, however loud and clear that murmur may have been. Finally, in no case of cardiac disease should an unfavorable prognosis be given in the hearing of the patient.

The celebrated Stokes, of Dublin, once heard a prominent physician say to his patient, a distinguished public man, who had an endocardial murmur, "Sir, I hear your death-knell!" Stokes publicly reproved his colleague for the indiscrete remark, and surely, if ever a rebuke was called for it was in such a case! No ethical considerations should protect a physician having so little sense as to utter so brutal a sentence.

As an instance of the decreased sense of danger in relation to cardiac diseases, let us look for a moment at the present state of therapeutics in regard to one which has always been considered an incurable and a deadly affection, viz.:

Angina Pectoris, that curious disease of the sympathetic nervous system (?), the heart (?), or the vagi (?), which slew Arnold of Rugby at its first attack on him, and also John Hunter, but only after causing him years of suffering,—so long considered incurable, though shown by Brunton to be capable of certain palliation by *Amyl Nitrite*, this terrible affection has been made the subject of some recent observations, which go very far towards proving its absolute curability. Professor Laskevitch* reports four cases of long standing and daily seizures, in which, after the use of *Cocaine* for a few days, the paroxysms gradually decreased in power and duration and finally disappeared altogether. All these patients were subjects of organic cardiac disease and very frequent and severe paroxysms of angina. In detail their chief phenomena were as follows:

No. 1, æt. 35, had aortic regurgitation, cardiac hypertrophy, dilatation of the ascending aorta, and 8 to 10 paroxysms of angina daily for over two years. The use of ½ grain doses of Cocaine, thrice daily, for three days, resulted in their disappearance, with no return up to date of report.

No. 2, æt. 63, had mitral regurgitation, dilatation of the aorta, intense arterio-sclerosis, and daily paroxysms of angina for six months past. Gr. ⅓ to ½ of Cocaine, three to five times daily, no angina after two days' treatment.

---

* *Revue de Médecine*, Aug. 10, 1886.

No. 3, æt. 5, marked arterio-sclerosis and severe daily angina, which ceased after two days' use of the Cocaine.

No. 4, æt. 40, aortic regurgitation, dilatation of the aorta, and daily paroxysms of angina for eight months past, which ceased after two days' use of gr. ⅓ of Cocaine three to five times daily, and have not returned.

Such positive affirmations of the power of a drug are not often uttered by so eminent an authority as in this instance; and it is to be most earnestly hoped that Professor Laskevitch's experience therewith may be sustained by that of every other observer who has an opportunity of trying it. Huchard had obtained good results in the treatment of this affection by following up Brunton's excellent induction as to the use of the Nitrites, and giving *Nitrite of Sodium* for a prolonged period; but no one has ever pretended to obtain any curative action of such promptly effective character, in this disease, as that in these four cases of Laskevitch's. Here is an opportunity for a properly organized profession to submit such an observation to positive experimentation, surrounded by scientific safeguards and in the hands of men recognized by the profession throughout the world. If such means were in existence there would be no question on the subject after a year or so. But, as things are now, there is nothing to prevent this observation falling to the ground in a stony place, where it will bring forth no fruit but will die and be forgotten.

If time and space permitted there are many other matters of deep interest in the therapeutical field, which I would like to notice, such as the investigation by Kobert into the action of *Digitalis* and that of each of its constituent principles—the discovery in *Strophanthus* of a better cardiac tonic than hitherto known—the many applications in every day practice of the wonderful properties of *Cocaine*—the different and yet associated actions of the heart poisons *Caffeine*, *Theine*, and others—the elegant and convenient preparations which the manufacturing druggists are placing in our hands, such as the *Tablet Triturates*, the *Soluble Elastic Capsules*, etc., but the field is too wide and this report already exceeds the limit of a patient hearing.

[illegible]re is one subject, however, which cannot be omitted [illegible] consideration of medical progress, so absorbing is its [illegible]d so wide the possibilities of its influence upon [illegible]ment of medicine. Nor will you be surprised to [illegible] this I refer to the subject of Bacteriology!

The Germ Theory of Disease.

Foremost still, as for several years past, in Pathology, Etiology and Therapeutics stands what was at first called the *Germ Theory of Disease*, but which forms now the foundation of a new branch of science,—we may say, indeed, a new science,—that of *Bacteriology*. On, ever onward, marches still the silent army, but the most numerous and the best equipped in this world of warriors,—that composed of the countless hosts of the bacteria and bacilli, cocci, spirilla and other forms of pathogenetic organisms,—the wondrous array of microbes, which, under the leadership of a few men, greater than generals, is marshaled for the conquest of Pathology, and is conquering the Etiology of one disease after another by broadsides of evidence, which is apparently irresistible. Against such a triumphal progress who is there bold enough to withstand the current, to set a limit to the invasion, and to say, "Thus far shalt thou go, and no farther?" He, indeed, must be a bold man who would dare to-day to stand up in any assembly of medical men, with an insane asylum conveniently near, and antagonize the prevailing doctrine of the microbitic origin of the hitherto named *zymotic* and many other diseases. Physicians are far from being angels—in fact they are pretty much like other men—like churchmen, for instance,—and they are just as intolerant as other men of rebellion against established doctrines—forgetting, as all men do at times, that the established doctrine of to-day was a rebel one a few years ago. And while thumb-screws and limb-racks have never been quite as fashionable among us as among the theologians, perhaps from a sense of such methods being rather unprofessional, still we have our own instruments of torture, and would not hesitate to apply them to the iconoclasts in our ranks, if we had the power. It is so unpleasant to have one's fixed ideas upset by a ruthless barbarian of a scoffer! Here we were all at sea for decades in regard to the etiology of disease, just settling down in a comfortable, storm-proof harbor, and on the very point of casting our anchors, and taking a good, firm groundhold, when along comes some restless fellow, shouting out that the bottom is all quicksand, and that we must hunt further for a secure anchorage!

Two very notable instances of such rebellion against the germ theory occurred last year; and yet so firm is the position

of the new doctrine that, so far as I have observed, not a single journal has given the slightest editorial attention to either of the attacks upon it. I refer to the address of *Dr. Mariano Semmola*,* delivered before the International Medical Congress in September last, and to *Dr. Longstreth's* article,† published a short time previously. The first-named gentleman is a physician and a scientist of high rank in Europe, is Director of the Therapeutical Clinic of the University of Naples, and was the delegate of the Italian Government to the Congress. The last-named is the well-known pathologist to the Jefferson Medical College Hospital and the great Pennsylvania Hospital, and lecturer on Pathology in the first-named school. Both these gentlemen avow themselves unhesitatingly as non-conformists to the doctrine of microbitic pathogenesis, Dr. Longstreth entirely, and Dr. Semmola only in respect of its later applications, and the quality of the evidence put forward in support of its claims.

Dr. Semmola refers to some interesting facts in the history of micro-biology, which are not generally remembered by those who look upon Pasteur and Koch as the fathers of the new doctrine. One such is that Pasteur's discovery of the cause of fermentation, announced by him in 1857, was anticipated by Caignard-Latour as early as 1825, in his formal announcement that *if yeast made from beer caused sugar to ferment, it was by reason of "some effect of its generation and of its life."*

Accepting the work of Pasteur on the contagious diseases of silkworms, that of Rayer and Davaine, in 1851, and Pasteur, in 1863, on the bacterial origin of anthrax, and some few others, which he calls "precious discoveries," he rejects all the later bacteria, and laments the whirlwind of microbes which, of late years, has been casting dust into the eyes of students and enveloping all Pathology. He ridicules the recent daughter of bacteriology, the doctrine of the *Phagocytes*, that battle between the invading army of bacteria and the defending militia of Leucocytes, supposed to be always raging in the human organism, and which he looks upon as the resurrection of the battles of the acids, of vital spirits and the archeri, which

---

* *Scientific Medicine and Bacteriology, in their Relations to the Experimental Method.—N. Y. Med. Jour., Sept. 10, 1887.*

† *Against the Germ Theory of Disease.—Therapeutic Gazette, 1887, page 816.*

formed the medical pathology of Sylvius and Van Helmont, early in the seventeenth century. He attacks the evidence advanced for the proof of microbe-causation in such diseases as osteo-myelitis, ulcerative endocarditis, etc., and shows that, while claiming to follow the strictest canons of the experimental method, its advocates violate them in every case in which they ignore a single one of the data of experience.

Formulating a definition of true experimental science as "*that which proceeds from the known to the unknown*," he insists that in all the investigations upon which the new science is built, there has always lurked an unknown quantity, an x instead of an a or a b in the data upon which the conclusions are based. Hence, he argues, the bacteriologists offer to us as scientific truths, doctrines which are only deductions of the lowest rank, since they rest upon an unknown factor amid their known ones, an x among all the a, b, c elements of the proposition. This x is the soil upon which the bacteria work, the diseased physio-chemical conditions of the blood or tissues of the animal infected,—a problem which is becoming more and more inaccessible to research, when we approach it as forming a receptive and a non-receptive soil for these organisms in different animals or in differing conditions of the same animal; or as influencing the virulence of the generations of microbes grown upon it, to increase, diminish or even alter their pathogenetic power. Thus we may think of this x as changing perhaps an innocent bacterium into a most deadly one, as easily as it may (and is acknowledged to) lessen the disease-producing power of its succeeding generations; or change its power of causing one disease into power to cause another disease, allied, perhaps, but differing greatly in fatality. This is the stumbling-block which he believes that the prophets of the new belief still carry around their system, and one that is inseparable therefrom, until we know more than we do concerning these physio-chemical conditions of the blood and tissues.

He points out the difference between the antiseptic prevention of Listerism and the antiseptic cures which the phenic-acid therapeutists are crying up, and holds that bacteriology has exaggerated its presumptions, and that its too hurried march does not merit the name of experimental progress. If the study of the vital conditions of the organism does not keep pace with the cultivation of rods and spheres on jelly, potatoes and broths; if pathology is to be given over to bacteria

and be made only a corollary of bacteriology; if the poisons, of which a few are already known to be formed by the human organism in itself, are to remain undiscovered for the sake of the cocci and streptococci; if we are to ignore the wondrous differences in the human soil which make one who had scarlet fever in his infancy exempt therefrom, and another perfectly healthy man who has never had it therefore *not* exempt; if, by the rabid cultivation of bacteriology, with its x accepted as an a, you suppress the preciseness of the scientific idea, what is to become of scientific Medicine? Instead of a steady advance all along the lines of Pathology, one equally with the other, do we not risk, as matters go now, the whole of Pathology for a few micro-organisms; and are we not building up the science of Therapeutics upon pathological hypotheses instead of rigorous experience, and thus wandering still farther away from the definite, scientific solution of the medical problem?

Dr. Longstreth's article is an able arraignment of Pasteur's methods, evidence and conclusions, in each of his various investigations since his yeast-plant discovery in 1857. He points out the fallacies in every argument, and finally brings forward another unknown quantity, a y to match Dr. Semmola's x, in the data upon which are founded the chain of reasoning for the proof of the central doctrines of bacteriology. This he very clearly points out in the fact, easily demonstrable, that the so-called "*pure cultures*" are *never pure* at all, though purity is the sole object of their preparation, the only excuse for their existence; that they never give back the one single, solitary object of their cultivation, an isolated, uncontaminated, "blue-blooded" microbe family alone, by itself; for there is always, in any inoculation made, some of the culture-medium present as well!

However sterilized originally the culture-material may have been, no one can deny that it is changed by the growth of the microbic organism upon it—an organism whose very life function it is to cause putrefactive change. Just as the yeast-plant in its growth induces the fermentative changes in the sugar which eventuate in alcohol, carbonic acid gas, succinic acid, etc., producing new substances as an intermediate stage of the material on its way back to the atmosphere and soil from which the sugar-plant derived the material for its growth; so the microbe, which certainly produces change resulting in disease, when it gains access to the human body, must, in the course of its reproduction, cause putrefactive (or fermentative, they are the same,

changes in the culture-fluid, and undoubtedly forms new bodies, some of which have already been shown to be active poisons. So, then, in every inoculation we use two things, instead of a solitary microbe, as they would have us believe, we use the microbe plus the *y*, the putrefied, changed culture-fluid, with its chemical poison, and we shall never know from bacteriology, as now carried out, which produces the disease.

The favorite culture-medium used by Koch for the cultivation of the bacillus tuberculosis is a preparation of gelatinized blood-serum, an organic material, sterilized by boiling. Upon this the so-called "pure cultures" are cultivated, that is, live, grow, reproduce their kind, and cause putrefaction, decomposition, or whatever else you may call the change which even the naked eye shows is going on in the culture-medium. Now, when of such a culture an inoculation is made, what is introduced into the blood and tissues of the animal inoculated? Is it the bacillus tuberculosis alone? Certainly not. There is also the changed, decomposed blood-serum, and whether it or the bacillus causes the disease no bacteriologist can tell. It ought to answer just as well, in the production of tubercle, as the lumps of cheese and other foreign matters which Villemin and other observers proved to do so, by irrefragable testimony, in 1865 and following years. Three other organisms were handed around scientific Europe before the appearance of Koch's bacillus, each one vaunted as the true and sole cause of tuberculosis; and there was nothing in the evidence for the latter, except the extreme care observed by Koch in all his work, to endow it with the etiological power of tuberculosis, above the others.

But perhaps the greatest blow which the new theory has ever received, is that which one of its fathers has just dealt it, in the shape of Pasteur's latest claims regarding the virus or cause of hydrophobia. It will be remembered that that illustrious chemist has made three efforts to elucidate the origin of that disease. The first, in 1880–81, was with a microbe taken from the saliva of a child dying of rabies after being bitten by a mad dog. The French Academy applauded, until Koch showed that this microbe's progeny would only produce a mild form of septicæmia. Again, a few years later, another set of conclusions was presented, again applauded, and again abandoned, without disproof, too, it may be said,—but in favor of a new theory,—which virtu[illegible]ons the idea of a micro-

bitic origin for hydrophobia at all; the new method casting all "pure cultures" to the winds, so far as micro-organisms are concerned, and substituting for them a piece of the *diseased tissue* of the rabid animal's spinal cord.

The truth or falsity of Pasteur's work on hydrophobia does not affect this question at all. The real point wherein it does, is that the microbe is abandoned, after Pasteur had presented some three different individuals of that class as the causative organism. So we get back again to the old ideas. If we have to purposely include diseased tissue in our inoculation material, what becomes of the microbe, except that he only figures as an occasional, perhaps even a constant, visitor?—but our faith in his sole possession of pathogenetic power must depart, and then we will, we must look again, as is in accordance with the testimony of ages, *to the potency of diseased tissue alone* for the communication of disease.

The question of the *purity of the "pure cultures"* may be made very clear by an illustration drawn from the antagonism between the theory and practice of our homœopathic friends in the matter of their "pure cultures" of attenuated micro-drugs. With them the molecules of Mercurius, Carbo, etc., as they are cultivated in the culture medium of Sugar of Milk, generation after generation, potency after potency, acquire *greater* power as the cultivation proceeds, in opposition to the *decreased* power of the disease producing germs brought around by cultivation. But neither bacteriologist or homœopathist ever think of their culture medium, whether it has any potency whatever originally, or derives any from the culture process to which it is subjected. Sometimes this is forced upon the homœopathists, and their Sugar of Milk proved to be more potent than the drug therein contained, as in the following curious historical case:

In 1876 the American Institute of Homœopathy elected Dr. Conrad Wesselhœft, of Boston, Chairman of its Bureau of Materia Medica, Pharmacy and Provings, and entrusted to him the reproving of medicinal substances, which had been going on for several years previously by members of that bureau. Dr. Wesselhœft took up the well-known drug *Carbo Vegetabilis*, in, I think, its thirtieth attenuation, as the subject for the year's work; and being Professor of Materia Medica at their best school, the Boston University School of Medicine, he organized his class of provers from among the students of that college. They were sixteen in number, eleven males and five females. In order to place this particular proving under strictly scientific safeguards, a thing which he believed had never been done before in drug provings, he only told them that they were proving a remedy, but kept them all in entire ignorance of what remedy it was; and in order to make the symptom-picture more striking, and to eliminate all accidental phenomena from the record, he

fed them for the first month on powders of Milk-sugar, alone and unmedicated, they thinking that they were taking a medicinal agent. Then, after six weeks observation of the phenomena produced by the supposedly inert menstrum, and the daily recording of the same, he changed their pabulum to the thirtieth attenuation of Carbo, prepared in Milk-sugar, without indicating in any way to the provers that any change had been made. The full list of symptoms recorded by each prover, both before and after the change, consequently both those under Milk-sugar alone and those under Carbo 30, were presented to the Society as the report of the bureau at its next annual meeting,* and created a sensation when it was found that under the supposedly inert menstrum the sixteen provers recorded an array of 765 symptoms, occupying 81 pages in the published transactions, while under Carbo 30 they only produced 212, and they of no marked distinction as compared with the others. The natural and logical deduction might be put thus: Whereas—

Milk-sugar + Mental Expectancy produced 48 symptoms to the prover;
Carbo 30 + Milk-Sugar and Mental Expectancy 13 symptoms "

Ergo—supposing the mental expectancy to be as potent in the one case as in the other, *Milk-sugar alone is more potent* as a physiological agent than *Carbo 30 and Milk-sugar together, as 48 is to 13.*

Resumé of the Question.—In taking a parting view of this question for another year, let us look all over the field and see the actual position of Bacteriology to-day, and the extent of its claims, first taking a glance backwards so as to get our bearings.

In 1856, Pasteur antagonized the prevailing views regarding fermentation and disease processes, which were those of Liebig. Then, as now, the French chemist antagonized the German chemist, and we have his own words for it that he undertook many of his investigations for the express purpose of proving Liebig to be wrong, "tormented," as he was, "by the idea that" his adversary's "reasonings might still find some credit"† Long after Liebig has passed away, the nationality of the question has altered, and to-day the same Pasteur is led, in his investigations upon hydrophobia, to stand upon Liebig's old doctrine, in opposition, as he must be shortly, to the German bacteriologist; but still the Frenchman antagonizes the German, and *vice versâ.*

Both Liebig and Pasteur assumed, what they never yet have proved, namely,—that the processes of infectious disease are identical with those of fermentation and putrefaction.

---

* See Transactions of the American Institute of Homœopathy for 1877; Report of the Bureau of Materia Medica, etc.

†"Louis Pasteur," by his son-in-law, p. 48.

Liebig held that the cause of all three was a *molecular transformation* or change of form in the matter or tissue, repudiating the agency of vital action, and holding that the virus or contagium, which reproduced the disease, is contained in, or a part of, the diseased tissue. Liebig wrote thus: "*By the contact of the virus of small-pox the blood undergoes an alteration, in consequence of which its elements reproduce the virus.*" Pasteur, on the contrary, and his followers, have been teaching us that the diseased tissues are of themselves innocuous, and incapable of communicating disease; but that the microbe, by its life-processes, consuming the oxygen of the blood, is alone the worker of the evil. "*Yes,*" he says, "*splenic fever is no doubt produced by bacteria, just as itch is produced by acaries* (sic) *and trichinosis by trichinæ;*"* and his argument, as well as that of the whole school, is: "*I discover the microbe, I cultivate it, I inoculate it, and I reproduce the disease.*"† Not always, M. Pasteur; even in the case of your grand *coup*, the anthrax inoculations. It has been clearly shown, by the evidence of all the observers, that the phenomena resulting after inoculation with a No. 1 culture of anthrax-bacilli and those after a No. 12 anthrax-culture, in the same species of animal, are essentially different, and do not present the same disease, either clinically or pathologically. In the first case, the symptoms observed and the changes in the organs will be the same as those of the natural anthrax disease, having been inoculated from a frozen specimen brought from Siberia, where anthrax is prevalent. In this inoculation, a portion of diseased tissue being present, we may expect, and do obtain, positive anthrax results, the virus of anthrax being present in its full vigor in the material inserted into the organism. But in the case of culture No. 12, and later, the animal dies just the same, but not in the same way. It remains in perfect health apparently for 48 hours or thereabouts after the inoculation is made; then very suddenly it crouches down, trembles, has convulsions and panting respiration, which continue until death, which rapidly closes the scene. Are these the symptoms of splenic fever? By no means! But what says the post-mortem record in all such cases. Nothing to the eye except minute

Op. cit. p. 192. This book is authoritative, having been written under the direct supervision of Pasteur himself. See the final words of the preface.

† *Trelat. Soc. de Chirurgie de Paris*, 21 Oct., 1885.

ecchymoses in the lungs and other organs, which, under the microscope, turn out to be emboli of anthrax-bacilli, the longest of all the microbe family, and the only kind capable of blocking a capillary blood-vessel. What has occurred? The bacilli and their culture-fluid, only, have been inoculated, the diseased tissue having long since been eliminated in the culture process. The bacilli thrive, growing in hundred-fold greater numbers than in the first case, for they have had more time; some get crosswise in the capillaries and a jam occurs, like that of logs in a stream; the bacilli pile up in great numbers, the capillary bursts; the same occurs in hundreds of places elsewhere throughout the lungs and other organs, the blood is not oxygenated, and the animal dies from CO_2 poisoning, caused by multiple emboli, the result of mechanical obstruction. Now where is the pathology of splenic fever in this case? No! we must not believe that the animal died of *anthrax* simply because we see the anthrax-bacilli and the dead animal! Yet most men would so believe and have.

The conditions laid down as to the requirements which must be filled in order to prove that a given disease is caused by a special micro-organism, are formulated as follows:*

(1). *The determination of the constant presence of a special micro-organism associated with the lesions of the disease.*

(2). *The isolation of this organism by a series of pure cultures.*

(3). *The production of the disease by the inoculation of the isolated organism.*

This rigid proof is held to have been *already fulfilled* for: Anthrax, Tuberculosis, Erysipelas, Glanders, Relapsing Fever, and several diseases of the inferior animals.

It is considered as very *nearly fulfilled* for: Cholera, Gonorrhœa, Typhus and Typhoid Fevers, Variola, Ulcerative Endocarditis, Pyæmia, Dengue, Osteo-myelitis, Malignant Œdema, Septicæmia, Actino-mycosis, Leprosy, Syphilis, Pneumonia, Puerperal Fevers, Abscesses and other purulent collections, as Boils, Carbuncles, etc.

It is *claimed* as fulfilled by *individual observers* for: Diphtheria, Scarlet Fever, Measles, Malarial Fevers, Whooping Cough, Hay Fever, Tetanus, Dysentery, Gastritis, Enteritis, and Yellow Fever.

---

* [illegible] Practice of Medicine, 6th edition, page 89.

The organisms believed to be the cause of these diseases are all destroyed by a temperature of 144° F. in the absence of their spores, while that of 212° F., the temperature of boiling water, maintained for five minutes, destroys the spores of all that have been tested (Sternberg). This latter fact is of the highest practical importance, as it shows that rags, clothing, etc., can be thoroughly disinfected much more easily than was formerly supposed, and that no germs of disease need ever gain entrance to our bodies through our drinking water, if we will only boil it.

In this connection a thought occurs which might lead to some clear results if an investigation on its line were carried out. Many years ago an English physician's report was quoted in Braithwaite's Retrospect, in reference to the immunity of the Chinese from typhoid fever, though, he said that in Pekin there was no system of sewerage, but all excreta was thrown on the ground to find its way into the water-courses by which the city was supplied, to soak into wells, etc. Yet, the report said, contrary to all experience elsewhere, typhoid fever was unknown in Pekin. The inevitable conclusion was that Chinese excreta did not give rise to typhoid fever. But, in thinking over the matter, the idea has arisen in my own mind, and grown very strong, that the real reason is because the Chinese boil all the water they drink. Those who know them best say that they never drink cold water, but always tea, *i. e.*, boiled water. Something there must be to account for their remarkable health under adverse surroundings. The assertion may safely be ventured that there is no other people with whom we are acquainted that could live in so crowded a condition as they do and remain so free from epidemic disease.

The many questions which loom up on the horizon of bacteriology give to the thoughtful physician a wonderful field of research, in which there is abundant room for all who have the time, the qualifications, and the desire to engage. Among those which are gradually rising to importance are the following, which need only to be mentioned to suggest the idea, which soon becomes a conviction, that *we* are but the *dwellers on the threshold*, to whom is only granted a fleeting glimpse at the wonders of the temple within.

The Doctrine of Phagocytosis was suggested by Metschnikoff, to account for immunity against disease, and

is strongly corroborated by some recent observations on the course of the erysipelatous inflammation. According to this view the white blood cells (leucocytes) of the organism constitute its standing army of defence against the attacks of the ever invading disease germs. "When the body is invaded by bacilli, bacteria, or micrococci, chemical or other irritants, information of the aggression is telegraphed by means of the vasomotor nerves, and leucocytes rush to the attack; reinforcements and recruits are quickly formed to increase the standing army, sometimes twenty, thirty, or more times the normal standard. In the conflict, cells die and often are eaten up by their companions; frequently the slaughter is so great that the tissues become burdened by the dead bodies of soldiers in the form of pus, the activity of the cell being testified by the fact that its protoplasm often contains bacilli, etc., in various stages of destruction. These dead cells, like the corpses of soldiers who fall in battle, later become hurtful to the organism they in their lifetime were anxious to protect from harm, for they serve as breeding grounds wherein the bacteria may germinate, and, like a pestilence and scourge, devastate the individual."*

The Ptomaines present another important question intimately related to bacteriology, but whether to support the doctrines thereof, or to refute them, does not yet seem clear. It is established, however, that decomposing organic matter may produce substances resembling alkaloids and highly poisonous to man and the lower animals. They are not only formed in dead bodies, but also in the intestinal canal of living bodies, from the decomposition of its contents in part. They may be absorbed from the intestines into the blood, and excreted in the urine, having been found in human urine both in health and in disease. They may also be formed by the putrefaction due to bacteria, and therefore indirectly by bacteria themselves; and a non-pathogenetic bacterium may produce a highly poisonous ptomaïne. Those which are not produced through bacterial agency are called *Leucomaïnes*, they arising from the decomposition of albuminous matters in the normal processes of waste in living animal tissues. Among them are Neurine, Cadaverine, Putrescine, Saprine, Mydaleïne, Sepsine, etc., some of which are obtained from human cadavers, others from putrefying yeast, maize, pepsin, brain-tissue, saliva, fish,

*J. Bland Sutton, F. R. C. S.

cheese, etc. Many of them have actions almost identical with those of some of the principal alkaloids. In milk, ice-cream and cheese may be formed *Tyro-toxicon*, discovered by Vaughn of Ann Arbor, which causes violent symptoms of highly poisonous character.

Now, if non-pathogenetic microbes can produce such highly poisonous substances, why should not the pathogenetic microbes? From this question it is only a short step to the query whether, after all, the microbes of anthrax, tuberculosis, etc., are not merely the producers of poisonous ptomaïnes, which in turn give rise to the disease, and which may infect the tissue long after their bacilli have been entirely destroyed.

If harmless micro-organisms may develop poisonous ptomaïnes, or may themselves develop into disease germs by being fed on a particular soil, and *vice versâ*, as there is much evidence to show, why may not the association of certain organisms with certain food give rise to new diseases? Or if ptomaïnes arise *de novo* in decomposing fecul matter in our intestinal canal, why may not a disease germ (organic or inorganic) arise *de novo* from some combination of emanations from our bodies when subjected to great overcrowding? These are only some of the thoughts which arise to mock at our knowledge, by showing us how ignorant we really are.

It certainly seems as though the pathologists of this era are neglecting, in their anxiety to cultivate new forms of bacteria, the study of the two unknown quantities in the bacteriological data, the x and the y, which stand where an a and a b only are admissible, namely: the character and qualities of the two soils upon which the bacterium thrives—that on which he was cultivated and that into which he is placed to perform his nefarious work. The mere finding of a new microbe, the cultivating it, labelling it, killing guinea-pigs with it, and exhibiting it to curious crowds on a magic-lantern screen, is not the way to bring out the truth of this grand question; is not the path in which to travel for the advance of Therapeutics, the end and aim of all our studies, whether medical or biological. We are workers for humanity, if we are anything. The reason for our being—our *raison d'etre*—is that we are working to save life. But what doth it profit any particular portion of humanity if, through our work, he gain a new breed of bacteria and lose his own life? To us, as physicians, advance in Medicine means advance in every direction that enables us

to save life; and we should be jealous of all study, all research, all investigation, within our ranks, which does not assist Therapeutics in some way, directly or indirectly. If all of the work in Bacteriology simply resulted in the knowledge that bacteria caused disease,—that corrosive sublimate alone could destroy them,—that the weakest solution which would do so is one of 1 in 20,000,—that this necessitates a dose of 52½ grains for a man weighing 150 pounds, and would mean surer death than even the microbes,—what would be the benefit to medicine of all the study? And yet, if bacteriological doctrines be true, this is the picture of the dilemma which faces us! We must insist upon the simultaneous advance of Therapeutics, alongside every other branch of medical science which may be the professional "fad" for the time being; and we can do much in this direction by giving our individual encouragement to every worker on the line of Therapeutics, every journal which promotes these views. The *Therapeutic Gazette*, edited by Dr. H. C. Wood, is a notable example of such a journal, and should have the largest circulation among medical publications in this country.

Conclusion.—The future of Bacteriology is by no means certain. It has probably come to stay, though not, I believe, in its present form. In any event, it will mark an important epoch in the history of Medicine. If it remains as a permanent branch of medical science, it must be in a greatly modified form, supported by better evidence than it has hitherto advanced for its claims; with less x and y in the data upon which rest its conclusions, and more respect for the parallel lines of pathological research. If it arrogate to itself all of pathology, as the Hahnemaniacs did all of therapeutics, it may make a big noise in the world for a while, but in due time it will surely be relegated to the rear rank, or to whatever position it belongs; and its cultivation will have exhausted the energies of its most enthusiastic votaries, and thereby delayed the arrival of pathological truth.

We are face to face with the grandest problem of all science, —the problem of life itself,—to the conception of which we have climbed by the ladder of infectious disease. Both are unsolved, both may never be solved—one probably never will—though, like the mystery of the pole, which, enshrined in the impenetrable ice of a frozen zone, is still attacked by great men

in every decade, this life-mystery will ever attract the noblest minds in spite of its essential insolubility. But our duty, the law laid upon the shoulders of each one of us, is to work on, aim high, and help, as far as lies within our power, to aid the final solution; approaching the altar humbly, as befits the priesthood of Nature's ministry, ready to record for all future time what we actually see; not, as so many have done, seeing only what they want to see! So perhaps, we may help to bring back again the day when, as once before, the sons of Men shall walk the earth as GODS, clothed with the attributes of Godhead, all knowledge and all power! Omniscience! and Omnipotence!

DISCUSSION ON REPORT COMMITTEE PRACT. MEDICINE, ETC.

Dr. W. F. McNutt, of San Francisco, in opening the discussion, said that he would allude to two points: the slow progress of the science and art of medicine, and the part that microörganisms play in disease. The reason why the science and art of medicine has progressed so slowly, is probably not the fact that we run from one new medicine to another, as Dr. Potter would make us believe, but that we have been trying to develop a science by merely developing the art, or the practical part of it. There is a science and art of medicine, and the application of therapeutics is largely an art. The great future for our science is preventive medicine, and the road along which the science of medicine must be developed is pathology. The key note to preventive medicine and the study of pathology is etiology, and etiology is a new science. Etiology has been studied but a few years. In our student days we heard nothing of etiology, yet we can say that it is absolutely impossible to understand or develop the science of medicine or to understand pathology without etiology. Etiology, then, is the key of the scientific part of medicine. No matter what we may believe about microörganisms, etiology cannot be advanced without taking them into consideration. There is a fact in it that must be admitted or disproved, while the methods of investigation may, and ought to be, questioned, while much of it cannot be substantiated; yet, step by step, it is making way. For instance, the doctor mentioned actinomycosis. What could the pathologist do for that without understanding its etiology? We find a few

abscesses perhaps, about the angle of the jaw, and we talk of blood poisoning; but the microscope shows us the microörganism — the spreading fungi and the actinomyces — and then we understand the pathology of that disease. Take what we used to call endemic hematuria — how much did pathology and therapeutics do to explain it until the etiology of the disease was discovered? When we found that the parasites that produced it were confined to places in Egypt, Mauritius, Cape of Good Hope and other places, then we understood the pathology and the treatment of this affection. Take uremic poisoning— what did pathologists do to explain it, until we understood that uremic poisoning did not depend upon urea in the blood or upon ammonia; but upon the fact that the epithelial lining of the uriniferous tubules failed to secrete urea from the excretions that were producing the symptoms? Then we understood the etiology, and the whole thing was perfectly plain. The path along which pathology must be developed, and scientific medicine must be advanced, will depend upon our progress in the study of etiology.

Dr. J. H. Stallard, of San Francisco: As the question before the meeting seems to turn somewhat on the advancement of medicine, I probably may be permitted, as one of the oldest members of the profession present, to take exception to the position of the Chairman of the Committee, and also to that of the gentleman who has opened the discussion. When I look back, I am sorry to say, very nearly fifty years, since I was a student, it seems to me that in no profession, and in no department of science, has a greater progress been made, than in the art and science of the profession to which we belong. I remember perfectly well seeing one of the most distinguished physicians in my native city under the delusion that he was suffering from congestion of the brain, the result of long and arduous work, with twenty-four leeches around his head, and a considerable number of empty bottles, the contents of which he had consumed himself. I have seen the time that that gentleman thought it his duty to prescribe a quart bottle of medicine for a child four years old; and when no physician visited a patient, whether two or three times a day, without writing a fresh prescription, and, I say, that in this particular and in many others, there has been a vast progress. It is forty-five years ago since I was the first practitioner in my native

town to discard the principle of being paid by the amount of physic that I poured into a patient's throat; but it was the most unfortunate piece of business I ever did in my life, for I destroyed my practice for a considerable length of time. People only desired to pay for what they swallowed; and physicians would prescribe four doses of medicine a day, two to be taken at night time, with an embrocation, a lotion and a blister. But all that has now passed away. In my opinion, there is a great advancement in the art of medicine, and I do not think we have anything to be ashamed of in the progress we have made in the last forty or fifty years.

Dr. A. Abrams, of San Francisco, believed that Dr. McNutt had slightly exaggerated the benefits derived by practical therapeutics from our advanced knowledge of the etiology and pathology of diseases. Uremia having been mentioned, he would take this as an example. The etiology of uremic intoxication can, for all practical purposes, be explained by the ingenious mechanical theory of Traube, or the more ingenious theory of Frerichs. The chemical theory of Frerichs supposes that the retained urea in itself does not produce uremia, but only by its further conversion, by means of a ferment, into carbonate of ammonia. There is much clinical evidence in support of this theory, and it is accepted by most authors as correct. According to this theory, the administration of acids would at once neutralize the ammoniacal condition of the blood and cure the disease. How successful we have been with the acid treatment needs no comment. To get rid of the retained products of tissue metamorphosis by the compensatory emunctories constituted the old treatment, and it would seem to be but little modified by the recent developments of pathology. Because we know that the epithelium lining the uriniferous tubules does not properly secrete, is but little aid to our inefficacious therapy. Bacteriology has held out more seductive inducements to therapy than any other development of medicine, and it is a sad commentary on medical science to find how disappointed we have been. Although we cannot deny the benefits afforded by antiseptic medicine, the good achieved belongs rather to prophylatic than to curative medicine. The course or duration of the infectious diseases, where pathogenic microbes have been recognized as etiological factors, have been but slightly modified by a practical therapy founded on bacteriological investigations. Our more recent knowledge of bacteriology

relegates the microbes to a secondary place, attributing the pathogenesis to the development of ptomaines. To oppose the virulent action of these ptomaines constitutes, then, the future basis for rational therapy. The speaker suggested the use of the term *ptomainemia* to designate that condition following the absorption of the ptomaines.

SUPPLEMENTAL REPORT

OF THE COMMITTEE ON

PRACTICAL MEDICINE AND MEDICAL LITERATURE

BY G. W. WESTLAKE, M. D., Red Bluff, Cal.

TWO VIEWS OF THE PRACTICE OF MEDICINE

The duty assigned the Committee on Practical Medicine and Medical Literature has been fully and ably discharged by the Chairman. Can it be that there still may be added something that will not only interest but possess such merit as to demand of you a hearing, and be worthy of your attention and criticism? If you condescend to refer me to the tender mercies of the publication committtee, and they do not think me worthy of a place in the ponderous production that is annually given to the profession to help fill our library shelves, they can put me in the waste-basket to be cremated.

We read in Hindoo fable that the Soors and Assoors, a race of genii, sat day and night churning the ocean to bring forth the Amreeta—the water of life. Soors sat on one shore hurling the churning-staff, and Assoors sat on the other, catching it and hurling it back. They were churning for the water of life which did not come, bnt things irrelevant came. The moon was churned out, and sacred elephants and cows. The fabulist wrote for our own times. Soors and Assoors are not genii but men; and they churn not the sea, but the sea of thought. Sitting on opposite shores of the sea, they churn to

bring forth the Amreeta, which stood in the mind of the fabulist for the solution of the problem of their own origin and destiny. Many irrelevant things have been churned out by the medical profession—many a white elephant and cow, and many theories struck of the moon; but there is one grand magnificent trait displayed by the doctors of medicine that has always excited my admiration and esteem. Amidst all their disappointments, all their discouragements, they have kept right on from one age to another, hurling the churning-staff, hoping, believing that the Amreeta would come. The churning goes on and the Amreeta must come. It is coming. It will come to the world through the medical profession by the regular route. It will come through the sciences. It will come through the higher education of the five senses. It will come through a better acquaintance of our relationship to the physical world. I cannot believe that the mighty Soors and Assoors of the profession of Medicine will churn forever and get nothing but froth. Is truth unattainable? It is either unattainable or the methods of search have so far been defective. The profession has made encouraging progress. It has thought and is thinking in every direction. It is investigating with the microscope and discovering the cause of some diseases. It is investigating the elements and finding something of their influence on the health of the race. It is increasing in knowledge of the laws of health and the laws governing disease. It is adding some years to the span of human life and making the world better, healthier, and happier. It has robbed some diseases of their terrors, and prevented the spread of others. The spirit of progress pervades every branch of the profession; and whether in the luxurious abode of the metropolitan physician, in the modest home of the village practitioner, and in every country doctor's quiet dwelling, intellectual activity is seen and felt. They are working with their hands, their hearts, their brains; and while the practice of medicine is a battle with death, in which the physician is often vanquished, it is true, never have his equipments been so complete, nor his victories so glorious as at the present day. Never before in the history of medicine has the profession been so thoroughly organized for effective work as at present. "No other influence operative in human society during the present age has done so much to develop and diffuse medical knowledge—to stimulate

its practical and successful application, both in sanitary measures for preventing disease and in the direct alleviation of suffering at the bedside, and in unifying and ennobling the profession itself, as has been accomplished by the aggregate medical society organizations of the world." The earnest efforts, the self-sacrificing spirit, the intense humanity and broad philanthropy of the profession have largely won the confidence, the esteem and admiration of mankind.

This is the view of medicine commonly presented by speakers and writers on public occasions. There is another not so pleasing, self-satisfying and complimentary to the earnest, conscientious, intelligent practical physician. Have the Soors and Assoors of medical science in this age of mental activity and discovery churned out of the vast sea of the unknown much knowledge that is tangible, useful and practical in the treatment of diseases? For after all treatment, therapeutics is the paramount business of the American physician. Has the discovery of the *contagium vivum* or the genus Bacteria, and a therapeutics based upon it, resulted in a material saving of human life? It is generally admitted that we have no germicidal agents that can be introduced into the circulating fluids of the body in sufficient strength to destroy the germs without injuring the organism. Again, there is a respectable minority of the savants of the profession that deny the bacterial origin of diseases, and at the present time the question is one of doubt, belief, and speculation. In the application of therapeutic agents as much or more uncertainty prevails than ever before. The physician's armamentarium is so large and new remedies are increasing with such rapidity, aud come to us recommended by such high authority, that there is danger of a therapeutical obesity. A therapeutic momentum has been acquired which must carry the profession forward with a dangerous rapidity. Wherever there is in nature excessive vitality and vigor, there is always a tendency to irregular development, to the formation of all kinds of straggling growths, to the production of weeds and general rankness.

In the present, more than at any time past, new remedies of little or no value are being praised beyond measure. If ever the hoe and the pruning-knife of criticism were needed, it is at the present moment. Recent writers of general treatises on therapeutics dogmatically assert as true that which is not proven. The therapeutic observers and contributors to our medical

journals have inflicted an irreparable injury upon the body of the profession by the recommendation of new remedies, or the new use of old ones, that have not undergone the crucial test of time and experience. Brilliant theories, important discoveries of apparent facts, so rapidly attract attention, and are so easily made, while close observation and permanent results require so much toil, and are so often barren of immediate glory, that the temptation to give reins to the imagination comes almost as strongly to the modern physician as the carnal visions to St. Anthony; and, like him, we ought to resist them to the death. A wholesome skepticism in the use of new and untried remedies will save the physician many disappointments. Great injury may result from an untrue allegation, or a false theory gaining foothold and rooting itself so that its influence shall continue for years. Many lives have probably been sacrificed in the past twenty years to the theory that chlorate of potassium yields its oxygen to the blood and thereby purifies the vital fluid—a theory that is as baseless as it is attractive and ingenious.

Another theory almost universally believed in, and almost as groundless as the other, is that which attributes the effects of the bromide of potassium upon the nervous system to contraction of the arterioles and the consequent production of cerebral and spinal ænemia. How many pages have been written in regard to this theory, what great and learned discussions concerning the nature of epilepsy and various other diseases have been written upon it. It still pervades neurological writings, and yet there has never been a single well-observed fact supporting it. For several years past we have been frightened and cautioned against the use of chloroform as an anæsthetic when organic diseases of the heart and lungs exist. Now comes Dr. Hunter McGuire, of Richmond, in a very able and impartial paper on the choice of general anæsthetics in surgery and obstetrics—read before the last meeting of the Medical Society of Virginia, and published in the Virginia *Medical Monthly*—and says:

"As nearly as could be judged from all available sources of information, chloroform by itself, or in combination with other anesthetics, was much more frequently used than ether. Taking obstetrical cases along with the surgical, it was safe to say that to-day throughout the civilized world chloroform is given twenty times where ether is administered once. In order to

indicate the discrimination which should be made in the use of chloroform and ether, Dr. McGuire said, in general terms, that in feeble, very anæmic people, or those suffering from the prostration of shock, or loss of blood, he preferred ether to chloroform. *In the young or the old, or in cases where cardiac, renal, or pulmonary trouble is suspected, he thought, as a rule, chloroform safer than ether.* Death might result from the administration of either anesthetic in the most competent hands, but as to which was more apt to kill, was, though a paramount question, yet undetermined. In recommending chloroform in cardiac troubles, Dr. McGuire wished to except a nervously weak heart. In organic valvular diseases of the heart, with the usual compensative muscular hypertrophy, there was no cause for alarm; on the contrary, the heart's action usually became more quiet and regular. But with a heart weak from fatty degeneration or from loss of blood or great anæmia from other causes, any anesthetic was dangerous, *but chloroform was less* dangerous than ether."

The same want of definite knowledge prevails in the action of a large number of the medicinal agents we are prescribing daily. In the medical journals and works upon the practice of medicine that are multiplying with such reckless rapidity, we find the same lack of precision and definite knowledge upon the subjects treated as we have complained of in therapeutic literature. The enterprise, or the spirit of excessive competition, which now prevails among American publishers, is yielding a most extraordinary crop of medical journals and great books, and seriously threatens the leisure and the finances of the average doctor. The majority of them are merely old books in new covers, stuffed and padded with speculative theories that are not of the slightest value to the busy practitioner at the bedside of his patient. If only the knowledge that has stood the crucial test of time and experience was contained in the text-books it would be an immense saving of time to the doctor, and would greatly redound to the welfare of the patient. I had occasion to treat during the months of February and March a number of cases of epidemic cerebro-spinal meningitis. After I had visited and diagnosed the first case, I repaired to my office to collect and read the literature on the subject. I consulted Vogel, Von Ziemsen, Von Niemeyer, Loomis, Aitken, Bartholow and Pepper, and when I had finished my researches I was surprised at the smallness of the harvest. With the exception

of the history, symptoms and pathology I obtained very little information that was useful and practical. They all agree that it is caused by epidemic influence, and some of them surmise that "there must be a peculiar miasm, *materies morbi* or germ present." But what the epidemic influence is, or the nature of the *materies morbi* they enlighten us no more than Viesseux and Mathey, who first clearly described it in 1805. On the treatment they are all at sea, without rudder or compass. There is a general agreement among them that opium or some of its derivatives in full doses possesses a superiority over all other therapeutic agents. But in the use of numerous other therapeutic agents and measures, the most diverse and sometimes opposite methods are recommended. Cold water, snow and ice by one; heat, as much as can be borne by another; blistering a little, blistering a good deal, and no blistering—all have advocates. The bromides and chloral by one—quinine by another—opium by nearly all—its antagonistic, belladonna and ergot, by a few—aud physostigma by another.

From this mass of contradictory experience and observation found recorded, I concur with Von Ziemsen, "that we are far from having it in our power to decide whether a rational treatment of the symptoms has cured the disease or lessened its mortality." That some of the agents recommended are injurious there can be no reasonable doubt. That some have a salutary effect I believe; that any possess a curative power I am unable to decide, as only one out of the six cases treated recovered.

I have mentioned these cases simply to illustrate the condition in which we find our etiology and therapeutics to-day. Probably a better example would be typhoid fever—a disease with which the profession has been familiar from ancient times, and upon which rivers of ink have been used in its written discussions. That its cause and treatment are still involved in inextricable confusion I need only refer you to the more recent voluminous systems of practice. The discovery of the Bacillus Typhosus and a system of therapeutics based upon it has not helped us. Ask a dozen doctors to-day, whose diplomas date from 1860 to 1888, to give you their methods of treating typhoid fever and you will receive a list of medicines and measures from each one materially differing from the others. The same confusion, the same lack of precise knowledge, exists all through the literature of nearly all the zymotic diseases.

Will the Soors and the Assoors of the medical profession never churn out of the combined experience and observation of clinicians anything more consoling to the anxious, ambitious doctor, and the suffering patient? What is diphtheria? Is diphtheria croup, and is croup diphtheria? Twenty years since Morrell McKenzie and others said they were identical, and Von Niemeyer and others said they were not, and throughout California we are debating the question to-day, and the profession is about equally divided.

Is diphtheria a constitutional disease primarily or is it a local one? Is cancer a constitutional disease with local developments, or a local disease primarily, affecting the whole system secondarily. Again the writers are about equally divided. There has never been a time in the history of medicine when dialecticians were more needed than at present.

> "That none but a clever dialectician
> Can hope to become a great physician,
> That has been settled long ago."

Too many of us possess that docility of mind which will accept the *ipse dixit* of a master, whom we follow and are willing to swear by, or we content ourselves with the aphorism that there is a great deal to be said on both sides of the question. If there were more dialecticians—if there were more independent thinkers—if we could relegate the dreamers, the visionaries, the Liebermeisters to the shades of the ponderous volumes they have written, the profession would make a long stride toward bringing forth the Amreeta—the water of life.

REPORT OF

THE COMMITTEE ON GYNECOLOGY

CLINTON CUSHING, M. D., San Francisco, Chairman.

THE CONDITIONS OF THE PELVIC ORGANS IN WOMEN THAT JUSTIFY ABDOMINAL SECTION

In preparing this communication the object in view has been to call the attention of the general practioner to a class of cases, examples of which are occuring not infrequently in every large community.

The correct diagnosis and the best method of treatment in many instances of well marked and clearly defined abdominal and pelvic disease is so simple and well understood, that doubtless most of those present would have no difficulty in arriving at a satisfactory conclusion; but there must still remain a considerable number where the nature of the malady is obscure, and the danger to life or health is sufficiently great to warrant some decided step being taken before it is too late.

I have thought it best to use the term abdominal section, for it applies to the cases where the incision is made for diagnostic purposes as well as those where an operation has been predetermined.

The first indication to be noticed is one that is agreed upon by most writers on the subject at the present day, any tumor of the ovary that is steadily increasing in size, or that causes sufficient pain to seriously impair the health.

The only exception to this rule would be where the tumor was of a malignant nature, or the state of the general health would not permit of a surgical operation, such as pulmonary tuberculosis, Brights disease of the kidneys, etc.

The diagnosis of malignant disease of the ovary is frequently difficult without an exploratory incision and if doubt exists such an incision should be made.

The symptoms of malignant disease are: the existence of ascites, the fixation of the growth to the surrounding structure, the failure of the health disproportionately to the size of the tumor; and the age of the woman, cancer being infrequent under thirty-five.

The pain which has been said to be characteristic of malignant pelvic growths is an uncertain guide, for the reason that similar pain may exist from the presence of a pelvic abcess, or from localized inflammations.

The complications that sometimes occur with intrapelvic growths may not only warrant, but imperatively demand an abdominal section; such as hemorrhage into the sac of a tumor, or gangrene of the growths from torsion of the padicle, the symptoms of which would be a marked depression of all the powers of life, high temperature, rapid pulse, local pain.

The occurrence of pregnancy during the existence of a rapidly growing abdominal tumor, that would seriously complicate the development and delivery of the child; it having been found that the removal of the tumor in many instances did not disturb

the progress of the pregnancy and that the production of an abortion has frequently resulted fatally from retained placenta, septicæmia and hemorrhage. Among eighty-two reported cases, seventy-four operations were successful. Thirty-six cases reported by Spencer Wells, Lawson Tait and Schroeder were operated on with only one death. If the operation is done early in the pregnancy, the results will be more satisfactory than puncturing the tumor, and the pregnancy will probably not be disturbed.

The rupture of the pregnant uterus and the escape of the fœtus into the abdominal cavity always warrant the abdominal section, the removal of the child, the cleansing of the peritoneum, and the suturing of the rent.

The rupture of the sac of an extra uterine pregnancy and the occurrence of the usual hemorrhage justifies the opening of the abdomen and the search for the source of the bleeding, if the woman has sufficient vitality remaining to make it probable that she may outlast the effort.

Within the past few years a considerable number of cases have been reported where extra uterine fœtation has been diagnosed during the first three months, and the abdomen opened, the fœtus and sac removed successfully and the operation followed by the recovery of the mothers. Of the nine cases reported in Bandl's article on this subject there was but one death.

The use of electricity has been so successful in this country in the treatment of these cases, that this should doubtless be given a fair trial before resort should be had to the knife.

I have recently reported a case of suppurating pelvic hæmatocele to the San Francisco County Medical Society, where abdominal section was necessary to effect a cure. The pus cavity was opened from the roof of the vagina and drained, but without effecting a cure. The exact nature of the disease not being clear, the abdomen was opened and it was now found that a large and horribly offensive blood clot partially filled the sac of the abcess, which was directly over the bladder in front of the uterus; a cure followed the removal of the clot.

Had the operation of opening the abdomen been delayed death would have resulted.

Abdominal section then should be performed in cases of large suppurating pelvic hæmatocele, for it gives the surgeon an opportunity to remove the decomposing clot at once and to insure perfect drainage.

In instances of large pelvic abcesses which extend high up into the abdominal cavity the opening of the abdomen offers advantages that are very great.

The opportunity for thorough cleansing of the sac, for the removal of necrosed and broken down tissue and for subsequent drainage, are well illustrated by several cases that I have reported to the County Medical Society during the past five years.

The prolapse of a diseased and tender ovary into Douglass' pouch, and which cannot be replaced on account of adhesions, may prove to be a source of so much pain as to seriously impair the health of the woman and to render her a helpless invalid. In such a case, where more simple methods are exhausted, the removal of the diseased organ by abdominal section is justifiable and must be considered sound treatment.

The same statement applies to the cure of hernia of the ovary into the inguinal canal or into the Labia Majora.

All who have had much to do with the diseases peculiar to women will have seen numerous cases of what is known as chronic pelvic peritonitis.

The original disease beginning in an acute inflammation of the pelvic peritoneum, results in the pelvic organs becoming fixed in a mass of organized lymph which requires months to be removed by the absorbents; and leaving behind as sequels bands of adhesions which fix Fallopian tubes, ovaries or uterus in abnormal positions, and not infrequently bind loops of the small intestines to the pelvic organs. In addition, collections of pus frequently form, which escape through some natural or artificial channel, or become encysted. The ovaries are left in an unhealthy state, and the Fallopian tubes are frequently found to contain pus or muco-purulent matter.

In the cases under consideration to which are applied the term chronic, the woman suffers from acute attack of pelvic inflammation and pain, from time to time, in the intervals of which she is never fully free from symptoms of pelvic disease, as evidenced by pain, inability to stand or walk with ease; or fault exists with the functions of the bladder, the rectum or the uterus. When the acute exacerbations appear, they are ascribed to a great variety of causes; to overexertion, to cold feet, to constipation, to faults of diet, to causes reasonable and unreasonable.

I will cite a typical case, and I doubt not most of those present will recognise an old acquaintance in the picture.

A woman applies to the doctor for advice regarding pelvic pain. The usual symptoms are enumerated; backache, pain in the region of the ovaries, disturbances of the menstrual function, leucorrhea, reflex pains under left breast, top of the head and back of the neck, troublesome constipation, irritable bladder. The temperature from one-half to two degrees above normal.

If you question her carefully, she will tell you that she has had several attacks of inflammation of the bowels, perhaps pelvic abcesses, and that her health has been gradually failing since the first attack; that she had consulted many doctors but like the woman in the Bible she was made no better, but on the contrary rather worse.

Upon making a digital examination per vaginam the tissues about the uterus are found tender to the touch, perhaps a displacement of the uterus backwards or downwards, or a prolapse of an ovary or fallopian tube into Douglass' space.

If the abdominal wall and the vagina be relaxed, by means of the bi-manual examination the examiner will be able to make out an enlargement in the region of the ovaries or Fallopian tubes.

If, on the contrary, the abdominal walls are rigid or loaded with fat, or the vagina is narrow, the examination is more difficult and more unsatisfactory.

In arriving at a conclusion we must needs be governed to a greater degree by the history of the case.

If now the examination has been a thorough one, and particularly if a sound has been introduced into the uterus, the probablities are that immediately thereafter all the troublesome symptoms will be aggravated; and in a proportion of cases an acute peritonitis follows, and perhaps the formation of a pelvic abcess.

Within the past few years the pathology in these cases has been made more definite and clear; and it is now generally conceded by those who have made a special study of them, that the main fault lies in chronic disease of the Fallopian tubes.

According to Hennig, in over half the bodies of women who were examined *post mortem*, the tubes were found diseased.

Winckel estimates that three-fourths are diseased.

Bandl, in making one hundred examinations, found catarrh of the tubes in over half the cases.

In chronic catarrh both tubes are usually affected; they contain mucus and muco-purulent matter, recent blood clots and the remnants of former hemorrhage.

In a considerable number of cases a stricture at some part of the tube occurs, and the tube becomes much elongated and enlarged, constituting what is known as Hydro and Pyo-salpynx.

Microscopical examination show that the mucus membrane has undergone degeneration, and in long standing cases the muscular wall and its peritoneal covering become involved and not infrequently adherent to the surrounding organs.

When it is considered that in a certain proportion of women in tolerable health a diseased condition of the tubes exists, that these tubes contain secretion of an unhealthy nature, and that they open directly into the peritoneal cavity; surely we need not look far for an explanation of the attacks of pelvic inflammation that follow the introduction of a sound or an applicator into the cavity of the cervix or uterine body, or the examination of the parts, or anything in fact that produces a contraction of the muscular wall of the tube, thereby forcing into the peritonial cavity an irritating and poisonous discharge.

The conditions in this connection that warrant abdominal section will depend upon our ability, by bi-manual examination either by the vagina or rectum, to demonstrate the existence of an enlarged tube or ovary in conjunction with long continued or frequently recurring pain and inflammation. Or, the frequently recurring attacks of pelvic inflammation that endanger life and health, although no well defined tubal disease can be made out, as might easily happen when the woman was very fat or the tubes were of small caliber.

In making this statement I wish it to be distinctly understood that I do not advise the radical operation if other methods fairly tried give reasonable hope for relief and restoration to health; but to allow such a case as has been described to drag along for months and years in a state of invalidism, and always in danger of an acute exacerbation that might prove fatal, is certainly not sound practice, considered in the light of the present state of our knowledge on this subject.

In fibroid tumors of the uterus where the hemorrhage is serious and uncontrollable by other means, abdominal section is justified either for the removal of the ovaries, thus arresting the monthly congestion, or in very large fibroids, or in the case of fibro-cystic growths of the uterus, the removal of the tumor.

From the recent favorable reports by Keith, Apostoli and others, showing the success attending the treatment of uterine fibroids by electricity, it may prove that the resort to the knife in the future in these cases will be seldom required.

Where attacks of Insanity or Epilepsy come on at the menstrual period, and are manifestly caused by some morbid state of the pelvic organs or nerves, the removal of the ovaries, in order to bring about the change of life, is an operation that has been done with only moderate success during the past fifteen years. It is resorted to only when other curative measures have been exhausted.

I would certainly advise it in extreme cases, if those in charge of the patient so elect, after the facts have been fairly set forth for their consideration.

In interstitial fibroid tumors of the uterus, attended with uncontrollable hemorrhage, where the growth is still small, the removal of the ovaries has, as a rule, put an end to the hemorrhage and caused an atrophy of the growth.

While other methods of treatment have been followed by a greater or less measure of success, none have so universally succeeded as the removal of the ovaries in appropriate cases; that is, in small interstitial fibroids that produce serious hemorrhages, and which are not amenable to other and less radical procedures.

In attempting to set forth the indications for abdominal section in the pelvic diseases of women, I have been governed largely by my own personal views and experience.

The views of the various writers on the subject are doubtless familiar to all; but the subject of abdominal surgery is still so new, so many points are yet undecided and are undergoing a process of evolution, that abundant room is left for improvement, for discussion and for original work.

It is true that other methods of exploration can be made use of with advantage in certain cases, such as the aspirator, the high rectal examination of Simon, etc., but none rival in value, in obscure cases, the abdominal section; and, the diagnosis having been correctly made, the surgeon is at once in a position to apply the needed remedy.

The danger in abdominal section is precisely in proportion to the gravity of the surgical procedures that follow the opening of the abdomen.

The simple opening of the peritoneal cavity for diagnostic

purposes should not be looked upon as in any considerable degree a dangerous one, if only the surgeon, his assistants and his appliances are clean; and it is right here that, in my opinion, the most serious obstacle to success arises. What one man considers clean another considers far from being so. In other words, the standard of cleanliness varies with different men; but on one point I think we can all most certainly agree, and that is, that, other things being equal, the cleanest man will meet with the greatest measure of success. Whether we call it Listerism or anti-septicism, the main point is the same in each.

That personal skill and individual experience are large factors in the successful management of cases of abdominal surgery is doubtless true; but, in the present state of our knowledge, every man in general practice should feel it to be his duty to make an abdominal section in an emergency where the symptoms warrant it.

REPORT OF COMMITTEE ON SURGERY.

APRIL 18, 1888.

By W. E. TAYLOR, M.D.

Mr. President and Members of the Medical Society of the State of California:

Six years ago I had the honor to make the report on surgery before this Society, and when I was notified of my appointment for this year I felt strongly disposed to decline the honor, and allow some one else better fitted for the task to be selected; but feeling that it was the duty of every member to contribute his mite, I decided to make the attempt.

The next question to be decided was, in what manner the report should be presented. The custom has usually been to present a resumé of the leading points occurring in the surgical world for the preceding year, and this must necessarily be largely gleaned from the current surgical literature, as published in the various medical journals; but as this material is

quite as accessible to every member of this Society as to myself, it seemed that such a method would be only reading to them that which they had already read, and perhaps more carefully and extensively than I.

In thinking over the matter, it occurred to me to select some one subject, and present it in such a manner as to elicit opinions from members present; for I feel that a full and candid discussion of a paper adds immensely to its value,—it brings out the ideas and experiences of others, often develops new ideas, and gives renewed impetus to thought and action upon that particular subject.

With this explanation, I hope I may be pardoned for departing from the usual custom, and in presenting for your consideration this evening the subject of Operative Interference in Internal Cancer.

The subject of the treatment of cancer is a very old one, and has been discussed from every possible point, and all sorts of remedies, both medical and surgical, have been discussed and used. I do not propose to consider the ætiology or pathology of the disease; but shall assume as a clinical fact, the existence of a disease called cancer, and I use the term as it is generally understood by the profession. None of the various forms of sarcoma are included. My remarks refer always to carcinoma; nor will any attempt be made to discuss any medical treatment, nor treatment by caustics or electrolysis; but solely to removal, wholly or in part, by means of cutting instruments, to which may be added the thermo and galvano cautery, and to operations on internal cancers alone; and under this term will be included cancer of the tongue and mouth generally, œsophagus, larynx, stomach and intestines, kidney, bladder, uterus and ovary, and to this list I shall add the thyroid, because of its close relations to the larynx. This list does not include all the internal parts that may and do become cancerous, as the lung, pleura, liver, etc.; but it includes about all that have been invaded by the surgeon's knife. It is only recently that this class of operations has been undertaken, and some of them have been done very frequently; and the tendency of modern surgery, especially when strict antisepsis (so called) is used, has been to enlarge and extend this field, and extirpation of the pylorus, kidney and uterus for cancer, is getting to be a very common occurrence. So common indeed, that we may well pause and reflect, and

ask ourselves if we are not passing the bounds of prudence in subjecting some of our patients to such fearful ordeals without any corresponding benefit. The object of a surgical operation is either palliative or curative. Can any one present say that such operations are curative? How many can even say that they are palliative or beneficial? I do not think the surgeon is justified in tendering his patient the knife with the one hand, unless with the other he can offer some hope of relief or cure; and, in speaking of a cure, following operations for cancer, the term cure seems to have a different meaning than when used in reference to non-malignant disease; for in this latter class, the cure means a permanent recovery, no recurrence, no extension to surrounding parts, and no systemic infection. But, in cancer operations, three years has been accepted as the limit, and it is known as the three year limit, *i. e.*, all cases that remain free from cancerous disease for full three years after the operation, or the last operation (in cases in which more than one operation has been performed) have been cured of the disease. The fixation of this or any other period as the limit, is indicative of an uncertain element in the cure. How different is it from the cure after the removal of a simple tumor! Here the cure is complete in a few days or weeks, and we do not look for local recurrence, constitutional infection, or both; and it is this very recurrence and infection or both, that should cause us to draw the line closely between malignant and non-malignant disease. A recent writer remarks, "There is some danger lest, in the great advances made in the treatment of operations, the nature of the disease making operative interference necessary may be lost sight of, and operations done, which, from the nature of the case, are well nigh desperate. Time was, when surgeons always kept in mind the liability of malignant disease to return, and that liability was added to the risks of the proposed operation, in estimating the propriety of its performance. But the comparative impunity with which operations can now be done, has led some, altogether and unwisely, to exclude from the equation all reference to this question." One principal object of this paper is to sound a note of warning, and to ask that we pause and consider well before we advise or perform some of these operations. To the older heads, and those who have some experience in this class of cases, this may be unnecessary, but to

the younger men, who are apt to be carried away by the éclat and glitter of some of these brilliant operations, as, for instance, removal of the larynx, pylorus, kidney or uterus, for cancer,—this warning may not be useless. Time and experience alone can demonstrate the utility of these operations, and I feel quite convinced that the time is not far distant when they will find their level, and when operations for internal cancer will be very much rarer than now; and in the few cases where they are practiced, a more careful selection will be made, and they will be done more with a view to palliation than cure. Our present experience teaches us that thus far, but little if any benefit has been derived from them. We all know how very difficult it is to make an early diagnosis, or even, many times, a correct diagnosis in cancer of the stomach, intestines, kidneys or uterus; and the disease must be well advanced before anything like accuracy can be arrived at. By this time, the neoplasm, by its extension, infiltration and involvement of contiguous organs and tissues has advanced far beyond the reach of the surgeon's knife; and while its gross appearance may be removed, the remaining portions either go steadily on their destructive path, or what is just as likely, advance more rapidly, being hastened by the injury and shock of the operation. Now, let us examine, for a moment, a few of the statistics of some of these brilliant operations for cancer, together with an appropriate quotation from Butlin's recent work on "The Operative Surgery of Malignant Disease." He says: "The improvements which have been made in operative surgery, particularly in the treatment of operative wounds, have rendered it possible for surgeons to operate on organs and tissues which were, until a few years ago, completely shut in from the attacks of the surgeon. The impunity with which these parts may now be dealt with in the treatment of inflammatory affections, cysts and innocent tumors, has led to the introduction of surgical attempts on malignant tumors which are open to the gravest objection. With a very limited knowledge, in many instances, of the natural course and capabilities of a malignant disease, the determination has been arrived at to treat it by operation; and the fact that experiments on animals have proved that they can live when deprived of the part in which the tumor is situated, has been considered a sufficient justification for its removal from the human subject. The effect is no more than

might reasonably be expected. For one of these new and brilliant operations for cancer, which is likely to gain a sure position in surgery, there are many that are apt to be held up as as a lasting record of the lengths to which surgery was pushed in the eighth and ninth decades of the nineteenth century.

The records of some of these operations are positively ghastly. Battles, shipwrecks and railway accidents are mild and merciful as compared with some of these achievements of modern surgery.

Sixty-five cases of total extirpation of the larynx for carcinoma, with thirty deaths due to the operation; six cases of œsophagectomy with three deaths; forty patients from whom malignant tumors of the kidney were removed, with twenty-eight deaths; one hundred and forty-eight cases of removal of the uterus through the abdominal walls, with one hundred and six deaths; fifty removals of cancerous thyroids, with thirty deaths; fifty patients for whom cancer of the pylorus was removed, of whom forty-one died. Here are the records of surgical operations on six parts of the body. The total number of cases is three hundred and sixty-four, with one hundred and twenty-six recoveries, and two hundred and thirty-eight deaths due to the operation. Truly, an awful mortality.

Still it may be said that the 238 persons who perished of the operation were in any case doomed to death within a short period; and that so large a mortality is more than justified by the cure of 126 persons, who must have died but for the operation. Is this so? Of the cases of carcinoma of the larynx, only seven patients were alive and well, more than a year after the operation; and only one of the seven more than two years. Of the three patients who survived the operation of œsophagectomy, two were known to have died from recurrence, and the third was lost sight of. Of the recoveries from removal of the kidney, only one appears to have been permanent; the others have been followed speedily by a recurrence of the disease. Of the cases of abdominal removal of the uterus, all the patients whose history has been followed up, suffered from a recurrence of the disease. Of the twenty recoveries from removal of cancer of the thyroid, only two survived the operation for more than one year. Of the thirteen patients who recovered from excision of the pylorus, ten suffered from a recurrence of the disease; and not one is known to have made a permanent recovery. Yet this same operation of removal of the cancerous pylorus was

described, when first performed by Billroth, as an epoch making operation."

I may add that statistics show a much less immediate mortality in vaginal hysterectomy, but I doubt if the ultimate result is any better. In a personal experience of three of these operations, two died from the effects of the operation, the third died at the end of nine months from recurrence; and I question very much if there has been a single permanent recovery after an operation for the complete removal of a cancerous uterus, whether by abdominal or vaginal section.

In thirty-seven operations for removal of cancer of the intestine, eighteen died; and as far as is known only one survived more than one year. In one hundred excisions of the rectum, there were thirty-five deaths. Those who recovered from the operation do not seem to have been followed up as closely as some of the others, and it is not easy to say how many remained cured in the three year limit; but it is fair to assume that statistics would show about the same rate of mortality as in other internal cancers.

With such a large immediate mortality as the above cases show, and the almost certain fatal results by recurrence in those who survived the operation, we naturally expect that there should be some decided relief to those who have survived these ordeals; but here too we are disappointed, for we find, with few exceptions, there was little or no relief, and in some the condition was quite as bad or worse than before, and that the same amount of benefit might have been derived from less severe measures. The relief afforded in removal of the tongue for cancer is usually marked and decided, and this to a greater degree than in any of the cases mentioned. The immediate mortality is comparatively small. Thus in seventy cases only eight died from the effects of the operation, but only six remained well according to the three year limit; and in some of these there may have been an error in diagnosis. In excision of the larynx, as a rule, there was not only no improvement, but many were made worse; and the same may be said of excision of the pylorus. In excision of the intestines and rectum there appears to have been little or no benefit. The relief in excision of the intestine, in cases where an artificial anus was established, was greater than when the divided ends were sutured. In rectum excisions two principal bad results seem to occur, one being obstruction due to contraction of cicatricial

tissue, and the other incontinence of fæces, the latter condition being more difficult for the surgeon to treat and more unpleasant for the patient to bear.

It is scarcely necessary to enter more fully into the statistics of this subject; and no matter how large or how small the number of cases reported, the average result, both in reference to operative interference and recurrence is about the same. It is generally believed that early removal is very necessary, if a cure is to be expected. Doubtless this is true, but early removal is not always possible, on account of the difficulty of early diagnosis; and an early diagnosis sometimes means an erroneous diagnosis. This is notably the case in external cancers, and it must be more decided in the class of cases we are now considering. Doubtless some of those present have had this difficulty to contend with, and many of us have seen cases that were apparently malignant, and so considered by some, brought to a successful termination by some simple treatment; and had removal been practiced, a cure of cancer would have been recorded. True, cures following operations for internal cancers have been reported by competent authorities; but in most of them the cure is at most doubtful, being based on the three year limit; and in those where the cure has been complete, one cannot but feel doubtful about the diagnosis, and I am convinced that the majority of completed cures reported have been the result of operations performed under a mistaken diagnosis. Certainly so far as my personal experience goes, I have never yet seen a case of carcinoma recover, either with or without treatment. I have seen several cases that were considered cancer, recover both with and without surgical treatment, notably one, a case of diseased cervix uteri which had existed some three or four years, at the end of which time an operation, presumably excision of the cervix, was performed. Some three years after this, the case came under observation. The natural history of the case was so unlike malignant disease, the appearance somewhat different, and the patient's general health, according to her statement, being about the same as for several years, that it seemed unlikely that it could be cancer. A careful inquiry discovered a clear and unmistakable syphilitic history. Suitable treatment was instituted, and a rapid improvement followed. Several other instances might be mentioned, but it is not necessary, as you are all more or less familiar with such.

It seems to me that errors in diagnosis, and a want of proper

knowledge of the natural history of cancer, are responsible for some of the reported cases. That such cases have taken place is likely, unless we adopt the rather liberal theory that all cases that die are cancer, and all that completely recover are not; but recovery must be very, very rare—so rare, indeed, as to scarcely affect the general result, and certainly too much so to justify such a terrible mortality in attempting to reach it.

The splendid results achieved in ovariotomy and in the surgery of the abdomen generally, during the past few years, are considered by some as a sufficient reason for advising and performing operations in the class of cases under consideration; and quite recently a medical gentleman intimated that if views similar to those expressed in this paper had been entertained during the past few years, ovariotomy would never have gained its present position in the surgical world. There can be no comparison between these operations. On the one hand we have a malignant growth, prone to infiltration, recurrence, and eventually systemic infection. It has all these qualities in addition to any others that may belong to the ovarian tumor, especially adhesions; and no matter how carefully and cleanly removed, we can almost certainly look for recurrence in a short time. The ovarian tumor, on the other hand, may be large or small; it may be composed of one or many cysts. Adhesions may or may not be extensive, it may interfere by its size in situation with important vital processes; but once safely removed, and the patient recovered from such removal, the cure is complete, and we can say to her: "You are well." But suppose it is known to be cancerous, can we give the same encouragement? I imagine not. The most we could do would be to express the hope that it might not return; and this not from any decided belief that it will not return, but rather to avoid taking away all hope.

During the past few years surgery has advanced with such rapid strides, so many operations have been successfully performed, and operative work carried on in parts of the body that were considered sacred from the surgeon's knife—and so much enthusiasm has been aroused by the splendid results in non-malignant disease, that it has led to the application of the same line of practice to malignant disease; and it seems as though the vast difference between the two classes of diseases has been swallowed up and lost sight of in the great wave of modern surgical enthusiasm; and only very recently has this

wave rolled back sufficiently to uncover the many wrecks scattered along its storm-beaten path, and cause us to wonder, if we have not, in our mistaken zeal, lost sight of some of the surgical landmarks, which, although old, are none the less true.

In non-malignant surgical diseases where life is threatened, or there is great physical suffering, the surgeon is justified in advising his patient to take desparate chances for cure or relief; for no matter how large, how great the pressure or displacement, it never recurs, infiltrates or produces constitutional infection; and recovery from the operation means, generally, a cure, or at all events, more or less permanent relief. Recurrence and infiltration of surrounding tissues and organs by the neoplasm, are the great distinguishing features in cancer; and should always be borne in mind in advising operations, and in estimating the probable result of such interference. I fear this has often been ignored or overlooked; and the advice given has been based only upon the probable recovery from the operation itself, which, as we have seen, cuts but a small figure in the ultimate recovery from the disease for which the operation is undertaken.

The difference is so great between operations in non-malignant and malignant disease, both in its immediate effects and remote results, that it is both unwise and unsurgical to attempt to estimate the probable results of the one by the other. No comparison can even be instituted; and no matter how successful and brilliant the results may be in the surgery of internal non-malignant disease, we can never apply them to malignant disease in the same situation.

Therefore, taking into consideration the enormous mortality and the unusual difficulty attending this class of operations, the small amount of relief, or in many cases none at all; the lesson we learn is simply this—no matter how many advances have been made in the technique of operations, no matter how strict the antiseptics or what the kind, and although the immediate mortality may in the future be somewhat diminished, still the one great clinical fact remains, and that is: we may invariably expect recurrence, systemic infection, or both, and a fatal result. And until we can discover some remedy which will have the power to prevent or destroy the cancer-cell growth and infiltration—all operations with a view to cure internal cancer will prove of no avail; and it does not seem,

viewing this disease from its most modern histological and pathological standpoint, that we can expect that anything like specific remedies will ever be found.

W. E. TAYLOR, M. D.,
Chairman.

DISCUSSION ON REPORT OF COMMITTEE ON SURGERY.

Dr. T. W. Huntington, of Sacramento, in opening the discussion, said that he regretted that the subject could not have been reviewed from a different standpoint from that adopted by the author. He was glad that a halt had been called to indiscriminate operations upon neoplasms, regardless of their end. It was true that some brilliant results had been obtained, and it had been claimed in consequence that the operations in all instances were justifiable. It had been said that the law givers of art were not always artists, and he was forced to admit that the law givers of surgery had not always proved to be surgeons. He believed that the ambitious operator, seeking the greatest good of the greatest number, had field enough and opportunity sufficient in which to achieve honor and the greatest amount of service to the human race. He wished to thank the author for the work he had done. He believed it would be of great service to the Society and to the profession.

Dr. E. B. Robertson, of Jackson, had operated in several cases of malignant disease. In each case the growth had been successfully removed, but after a variable period of time had returned. He therefore believed that where we are fortunate in one case and the patient recovers and continues to do well, that it is simply an error of diagnosis. We may put off the evil day, but there is no such thing as cure.

Dr. L. C. Lane, of San Francisco, disagreed with Professor Taylor in the view which he had taken of the incurability of cancer. He was entirely satisfied that cancer was curable, and he was satisfied that he had cured it a number of times by operation. Since November, 1876, he had operated 88 times. A number of cases had been kept under observation. Many of them had died, but he could safely calculate that one-fifth were living. The great trouble was that the cases were not seen sufficiently early. From observation and study he was convinced that in a very large number of cases the trouble is at first purely local, and therefore curable by removal. There

was a great prejudice against operation from the dissemination of the notion that the knife will not cure the disease, and it frequently happens that cases are not seen until too late. It was easy to talk and to give one's personal experience. He would, however, select one case, to show there could be no doubt as to the nature of the disease. In what might be termed a "cancer family"—the father and mother died of cancer; they were not operated on—a daughter had an unmistakable cancer of the mammary gland. An operation was performed on her nine years ago. She is, and has remained well ever since. A granddaughter also had the disease. Her breast was removed five years ago. There has been no recurrence. In these cases the operation had been performed early. A patient, who had been operated on twenty-five years ago for mammary cancer, and in whom the other breast was subsequently removed, is still living. With these facts before him he was compelled to disagree with Dr. Taylor. Billroth states that he has cured one-third of his cases, and Germans are very careful indeed of their diagnoses. A misroscopic examination is invariably made. Personally he had always followed this rule.

Dr. Huntington inquired if the speaker's experience warranted operations on deep structures, as in cancer of the uterus?

Dr. Lane—I believe that I was the first to perform that operation in the United States. Nearly all the cases were seen too late. They had been cauterized and portions of the neck had been removed in every case except two. I believe the operation is justifiable if we could get the case in time, but I should carefully select my case and would be guided by previous experience.

Dr. W. F. McNutt, of San Francisco, said the statistics of removal of the uterus for malignant disease are much better in Europe than in this country. Martin has had marvelous results—his cures being about forty per cent. The secret of this is early diagnosis, for which the microscope is relied on. He did not think that an American surgeon could be found who would operate on this evidence alone. Enlargement, hemorrhage, pain and all the physical symptoms were deemed necessary. Then when an operation is performed the patient dies. The speaker had operated on a patient for cancer of the lip thirteen years ago, and he is now perfectly well. Four years ago he had removed a breast. The disease was well

advanced. All the glands were removed. The patient is now perfectly well. He thought that more attention should be given to early diagnosis, and by that means we could expect to relieve more of our patients, and fully justify the operation.

Dr. J. D. Arnold, of San Francisco, said that where the individual experience of surgeons would put them either on the radical or conservative side of the question, he believed that the true pathology of the disease should be made the touchstone for operation. If the surgeon believed the disease to be systemic, operation was only justifiable for the relief of pain and prolongation of life. If, however, he believed that cancer was a purely local disease and could become systemic through actual extension, his decision would depend on whether or not he could completely remove the diseased structures.

Dr. Charlotte B. Brown, of San Francisco, thought that the refusal to operate often exercised a disastrous effect upon patients by confessing the hopelessness of these cases. She would operate even in the face of a large mortality, and she thought that other surgeons shared this feeling.

Dr. C. Cushing, of San Francisco, said that his personal experience was limited to malignant diseases affecting the uterus. He agreed with Dr. Arnold as to the main principle which should underlie operative procedure. In cancer of the uterus, there were only two conditions which warranted active interference. One is that the disease shall be limited to the uterus, not affecting the surrounding tissues. The other is where the disease is extended sufficiently to produce an amount of hemorrhage and discharge, which seriously impairs the comfort and immediate health of the patient. Cases in which the surrounding tissues are involved, but without serious discharge, are not proper cases for operation. When the uterus was fixed it was unwarrantable to remove it. In the first place, it involved the danger of immediate death. In the next, there was no such thing as a cure. The only possible justification for surgical interference is to gratify the woman in making her think that something is being done, and thus keeping her out of the hands of the quacks. He believed that these two propositions were sound. A portion of the growth should be subjected to microscopic examination. If this proved that it was cancerous, an operation was justified under the limitations that he had laid down. Outside of [illegible] he believed that interference was not warranted.

Dr. J. Rosenstirn, of San Francisco, believed that the position as to the advisability of removing internal cancer in strict opposition to the removal of external cancers was an erroneous one. Why should we believe that cancer of the uterus would be more liable to affect the organism than diseases of the mammary gland? The real secret of success was early operation, and we should endeavor, where we can make a positive diagnosis, to have our patients submit to operation. Extirpation of the larynx had been mentioned, and it was true that in the statistics quoted by Dr. Taylor, there was an alarming mortality; but if we look to the statistics of one operator, Eugene Hahn, we find that he has only two deaths following fifteen operations. Of these, two are now well—one seven and the other three years after operation. Without advocating operation, he thought we ought to endeavor to improve our methods. We could not cure cancer, but we were certainly able, in many instances, to relieve intolerable suffering, and to prolong life with freedom from pain for many months.

Dr. Taylor, in replying, said that he did not wish to be regarded as considering these operations unjustifiable. His object had been to call attention to indiscriminate operations for internal cancer, simply because consent was given, and because the patient may survive the operation. Operations on properly selected cases were justifiable. Notwithstanding what had been said, he felt that true cancer involving an internal organ, was not curable by operation. He did not consider that operations for external cancer were unjustifiable. They were justifiable in many cases, with a view to both physical and mental relief. He questioned whether a microscopical examination was always correct, and doubted the competency of many in the use of this instrument. Investigators often found what they expected to find. The object of his paper was to call attention to indiscriminate operations; to ask for a reconsideration of the subject and greater care in the selection of cases.

SUPPLEMENTAL REPORT
ON SURGERY

BY A. M. GARDNER, A. M., M. D.

ELECTROLYSIS IN THE TREATMENT OF ORGANIC STRICTURE OF THE MALE URETHRA

Mr. President, and Members of the Society:

My name having been placed upon the Committee on Surgery for this session of The Medical Society of the State of California, an honor which I fully appreciate, is my only excuse and apology for presenting this paper to your notice.

I will take this oportunity to state that the paper will consist of a resumé of the subject in question rather than opinions of my own, giving the practical clinical experience of others, drawn and collected from such sources as were at my command, with the history of two cases recently under my professional care and observation.

It has been said that "No one can be a master in Electro-therapeutics without also being a master in Electro-physics."* If this statement be true, and doubtless it is, will it not account in part for many of the failures in the use of Electricity in the treatment of disease both surgical and otherwise? It is not an uncommon statement to hear from physicians and surgeons that they "have no confidence in Electricity as a therapeutical agent." Why should this want of confidence exist? Is it because the remedy has been thoroughly and efficiently tried and found worthless? or because there are many other remedies, both medical and surgical, which will accomplish the same results with greater safety to the patient, and less inconvenience to the medical attendant? It seems to me that the foregoing queries must be answered in the negative, and other reasons sought after to furnish the explanation.

Electricity as SCIENTIFICALLY applied to the treatment of disease is still in its infancy; although recognized as a curative agent since the time "when the Greek slave, Anthero, was subjected to the shocks of the Torpedo, or 'Electric Fish,' to

*"A Practical Treatise on the Medical and Surgical Uses of Electricity," 1881, page 1: Beard and Rockwell.

cure him of his infirmity," and is as it were born but yesterday, while many of those who are officiating as nurses to the new arrival are scarcely able to apply its pinning blanket. In other words, the remedy is so wonderful in its multiplicity of effects; it possesses such varieties of application to certain ends; it requires such a thorough knowledge of Electro-physics, Electro-physiology and Electro-therapeutics, both theoretical and practical, that many who are engaged in the arduous toil of the general practitioner or the multiplied engagements of the specialist, do not have, or at least think that they do not have, the time to devote to the acquirement of this knowledge, which alone can point out the "royal road to success;" and herein probably lies the paramount cause of its failures and the want of confidence, in many instances, in its efficacy as a therapeutical agent in disease.

As this paper deals with Electricity as used in a surgical procedure, a short history of Electro-surgery will doubtless be of interest: Between the years 1821 and 1831,* Electrosurgery as such came into existence. This time was not auspicious for its enthusiastic reception by the medical profession at large, and for the reason that, prior to these years, the most miraculous results were claimed to have ensued from its use; while the most extravagant promises followed as to what could and would be accomplished by its employment in the future. It is needless to say that the results were, in many instances, not to be attributed to the use of Electricity at all. The promises were only made to be broken; the hopes that they had engendered had not been realized, and the reaction following left only suspicion and distrust to welcome its further use in any other department of the science of medicine. Still, in the midst of all this confusion, distrust and neglect, there were a few who continued to experiment and investigate and, at the same time, record their experiments and investigations with their attendant results.

The following-named investigators, with abbreviated statements of labor performed, with dates given, will be found more fully dealt with in Beard and Rockwell's "Practical Treatise on the Medical and Surgical Uses of Electricity," pages 655 to 658:

*Beard and Rockwell: Prac. Treat. on the Med. and Surg. Uses of Electricity; p. 635.

Prevost and Dumas' dissolution of calculi in the bladder of animals; partial success. 1823.

Sarlandiere: Electro-puncture, with statical Electricity, 1825.

Magendie: Galvano-puncture at late date. Both used more for medical than surgical purposes in the beginning.

Scudamore: Coagulation of the blood. 1830.

Guerard and Pravaz: Treatment of aneurism by this method proposed. 1831.

B. Phillips: First used it, 1832. Afterwards it was studied by Liston.

Steinheil and Heider: Suggested that the nerves of teeth might be destroyed by Electricity. 1843. Successfully done by Heider, 1845.

Petrequin, of Lyons, and Bruci, of Italy: Galvano-puncture in aneurism; successful. 1846.

Bertani and Milani: Varicose veins treated by galvano-puncture, 1847.

Crussel: Ulcers and cancers treated by application of metalic plate connected with positive pole, negative held in hand; cures followed. 1847.

Marshall: Fistula successfully treated. 1850.

Baumgarten and Wertheimer: Varicose veins successfully treated. 1852.

Ellis: Inflammations and ulcerations of the cervix treated. 1853.

Hall: Ununited fracture successfully treated. 1853.

Middeldorpff: Published his celebrated work on the galvano-cautery. 1854.

Demarquay: Swelling of submaxillary gland removed by galvano-puncture. 1855.

Boulu: Resolution of tumors by magneto-electricity. 1856.

Zsigmondi: Successful experience with galvano-cautery after Middeldorpff's method. Published, 1858–9.

Delstanche, Lehmann, Burdell and Thevissen, reported successful cases of hydrocele treated by farado-puncture. 1859.

Braun and Gruenewald introduced the galvano-cautery into gynecology, 1861.

These are the names of some, at least, who, during these years, kept the subject before the profession, thus preventing it from relapsing into entire forgetfulness. Thus far we have purposely refrained from introducing the names of those who studied and investigated the electrolytic properties of Electricity upon living tissues; and for the reason that it is only the electrolytic or electro-chemical effect of electricity that will be considered in detail, in the clinical report of cases to follow.

The names of those who have enriched the annals of Electro-surgery by following this particular line of study, as well as the study of Electricity in its entirety, are: Crussel, as early as 1839, followed by Willebrand, Wells, Cinisselli, Scouteten, Mallez, Tripier, Althaus, Von Bruns, Groh, Neftel, Duncan, Voltolini, Caldwell, Prince, Wertheimer, Bautisto Campos,

Dietrieux, Brunner, Weiss, Frank, Wolf, Douglass, Dukeman, Glass, Butler, Apostoli, Bryne, Newman, and many others.

The first experiments in the treatment of organic urethral stricture in the male was successfully made by Crussel and Wertheimer in 1847, but to Mallez and Tripier must be accorded the praise of having pursued the subject with energy — outlining, in the main, a proper course to be followed — in the use and application of the remedy, giving a clinical account of their cases and the results that ensued. It may be of interest to give the names of a few at least of those who have utilized Electrolysis successfully in the treatment of organic stricture from the date of Mallez and Tripier's investigations up to the present time. They are as follows: Althaus, Willebrand, Cinisselli, Scouteten, Bautisto Campos, Dietrieux, Brunner, Weiss, Frank, Prince, Butler, Schweig, Wolf, Douglass, Glass, Dukeman, Beard, Rockwell, Newman, and others.*

---

*Appended will be found a bibliography of the subject as given by Dr. Newman and others:

Althaus in Goerschens Deutsche Klink, No. 34-36: Heilung der Harnroehren-Stricturen durch die Electrolyse.

Mallez et Tripier, "Traitement des Retrecissements Uretraux par la Galvano-Caustique Chimique Negative, Compte Rendu de l' Acad. des Sciences." Bulletin Therapeutique, Mai. 30, Med. 58.

Mallez et Tripier, "De la Guerison durable des Retrecissements de l' Urethre par la Galvano-Caustic Chimique."

Keyes, "Electrolytic Treatment of Strycture of the Urethra." New York Medical Journal, Dec., 1871.

Bautisto Campos: "De la Galvano-Castique Chimique-comme moyen du Traitement des Retrecissement de l' Urethre." Paris, 1871.

Dutrieux "De la Galvano-Castique Chimique dans le Traitement des Retrecissements Organic de l'Urethre." Press. Med. Blge, No. 25, 1872.

Mallez et Tripier: London Lancet, October, 1871.

"Multiple Strictures of the Urethra treated by Electrolysis," by T. F. Frank, M. D., Medical Record, Feb. 2d, 1874, page 62.

Newman: Archives of Electrology and Neurology, May, 1874, page 18

"Ten Years' Experience in the Treatment of Stricture of the Urethra by Electrolysis," by Robert Newman, M. D., Medical Record, pages 169 to 197.

Dr. John Butler: American Journal of Electrology and Neurology, Oct., 1879.

Transactions Illinois State Medical Society for 1873. Report by David Prince, M. D., of Jacksonville, Ill.

"Electrolysis in the Treatment of Organic Scrictures of the Urethra," by J. H. Glass, M. D., Medical Record, 1883, page 512.

"The Treatment of Organic Scrictures of the Urethra, by Electrolysis," by W. H. Dukeman, M. D., Medical Record, Jan. 5th, 1884.

The electrolytic or electro-chemical effects of electricity are established, and proven to exist without doubt or cavil, and to deny these effects would be quite as unreasonable as to abjure the existence of electric force itself; hence no argument should be required to confirm the existence of the agent; but once having found it, we should proceed to determine how it may best be utilized to render less unbearable the ills of suffering humanity. Those who have been called upon to witness the physical as well as mental anguish of an individual suffering from retention of urine, caused by stricture or strictures of the urethra, can scarcely fail to realize the fact, that he who brings relief, and especially if that relief be permanent, has achieved still another victory for the science of surgery.

Let the person who is called upon to remedy this condition of both danger and distress be a master in the science of electricity; grant that he is a skillful surgeon as well, with a thorough knowledge of the anatomical structures to be dealt with, and a clear appreciation of the dangers both present and remote to the patient—place electrolysis in his hands as the active agent with which to combat the existing evil—and what will be the result? The number of cases following, with the clinical history of a certain proportion of those presenting the worst features will at least, in a measure, have to answer the above question. Every remedy, whether medicinal or surgical, must pass through the crucial test of clinical experimentation and observation before it can assume a trusted position in the Armamentarium Remediorum of the physician and surgeon, and by this test alone must electrolysis be accepted, or rejected, as a remedial agent in the treatment of organic structure of the male urethra. As before stated, Mallez and Tripier, in 1856-7, used electrolysis in the treatment of organic stricture of the male urethra. In all, thirty-one cases were treated by this method, with satisfactory results. One death occurred from urethral or urinary fever, which, according to the operators, was not to be attributed to the operation, the patient having nearly lost his life once before after urethrotomy, and cite it as a well known fact that death has followed simple catheterism in individuals suffering from general ill health or disease of the kidneys; and it may be further stated that death has followed the attempt to pass a small, soft bougie when the general health was good, and no structural disease of the kidney could be discovered upon making careful microscopical examination

after death. As a rule there was little or no pain, but slight hemorrhage. One seance was sufficient to overcome the stricture and effect its cure, while some of the cases were under observation for three years without a return of the trouble. The following is a clinical report of one of their cases:

A custom-house officer, aged 62, had had gonorrhœa at the age of twenty, and passed his urine with difficulty for the last ten years. For the last eighteen months there has been incontinence of urine, which obliged the patient to wear a urinal. He was unable to follow his employment. On May 2d, 1864, the urethra was explored with an elastic bougie, which encountered an obstacle at end of spongy portion of the urethra; and rectal examination showed the existence of hypertrophied prostrate without deformity. For twenty minutes tried to introduce a bougie, No. 3, into the bladder, which caused a few drops of blood to appear. On May 6th, a bougie, No. 3, was introduced after patient trials of three-quarters of an hour; and on May 9th, the stricture was electrolyzed to the extent of half an inch. The application lasted five minutes. Immediately after the operation, bougies No. 19 and 20 could be introduced without any difficulty, and the patient passed his water in a full stream. No fever supervened. The incontinence ceased, and he was no longer obliged to wear the urinal. He was seen several months afterwards, when he was in excellent health, and there was no return of his stricture.

Within the two years preceding Jan. 5th, 1884, Dr. W. H. Dukeman, of Olean, N. Y., has successfully treated thirty-one cases by electrolysis, as reported in the Medical Record for that date. The following is a clinical history of one of his cases, as reported by himself.

Case No. 1. Mr. J. S., aged twenty-eight, a photographer. Traumatic stricture of seven years. Two strictures: First, two inches from meatus, admits No. 17, French; the second, at the membranous portion, only admits No. 13, French. The second stricture is irritable, and the introduction of the instrument causes pain. Sept. 1st. Electrolysis with a No. 17 French insulated bougie IN SITU, and nine cells in operation. The stricture was passed in fifteen minutes. Here the electrolysis on the irritable stricture acted as a sedative. . . Sept. 17th. Electrolysis was repeated with a No. 23 French insulated bougie, with a current of eight cells. In twenty minutes the electrode bougie passed both strictures into the bladder. The

irritability was not complained of this day. . . .Sept. 30th. Electrolysis again with a number 26 French insulated bougie, seven cells working, and in thirteen minutes both strictures were absorbed. . . Oct. 15th. A No. 17 (English) Van Buren's conical sound smoothly passed both strictures. Patient discharged.

Dr. J. H. Glass, of Utica, N. Y., reports the successful treatment of nine cases by electrolysis in the Medical Record, May 12th, 1883. I quote the following clinical history of one of his cases:

Case 5. P. H. M., aged thirty-five, married. Fell from a hay-loft eight months since, striking the perinæum on an inch board. Examination on this day, April 1st, reveals an annular stricture of the membranous urethra, which will pass a No. 9 bulbous bougie, with current from ten cells. No. 10 passes after five minutes. . . .April 20th. Nos. 10 and 11 pass without trouble, or pain worthy of consideration. . . .May 12th. Nos. 11 and 12 pass easily. Patient says he can now hold his water from three to five hours, and it comes away in a good stream. When commencing treatment was obliged to urinate frequently—proof positive that in this case, at least, vesical irritability was not aggravated by the treatment by electrolysis. May 28. Pass easily Nos. 11 and 13. Patient declares himself cured. . . .June 20th. Pass 13 and 14. . . .July 18th. Pass No. 14 Van Buren sound without aid of battery. Patient discharged.

The following is a clinical report of one of Dr. H. Weiss's cases, of Buffalo, N. Y.:

Case 6. History: Traumatic stricture. Operation took place June 16th, 1878. Twenty-four elements of the galvanic battery were used for twenty-eight minutes, until the stricture could be passed to the length of five-eights of an inch. Eighteen elements were used by me at first, but the advance being slow, and the patient not feeling any pain, I went to twenty-four elements, by which means the advance was more rapid, and the patient still suffered no pain. A few minutes before the end of the operation the patient began to lose courage, complaining of his constrained position, and he did not believe he could much longer remain in it. It being very unpleasant to me to discontinue the operation on that account, I encouraged him to hold out a few minutes longer, which he did with fortitude, obviously because he did not see me waver in my confi-de- bougie passed the stricture. On the other side

of the stricture I found no further obstacle, but did not wish to explore further than one to one and one-half inch. In withdrawing the electrode, the mouth of the stricture gave a slight obstacle to the passage of the ivory button, which had the thickness of a catheter No. 11. This seemed to prove that the end of stricture was less extensively disintegrated than the portion nearest the meatus. . . July 20th. Mr. M. came to my office to report that he had been feeling very well since the operation, and wished to consult me as to whether it was necessary to introduce an instrument occasionally, and if so, of what kind, as the calibre of his stream had diminished perceptibly. On making an examination, catheter No. 9 would not pass the stricture. I advised a repetition of the operation, in place of the troublesome and yet not satisfactory introduction of bougies. As the patient coincided with my opinion, the operation was repeated the following day. SECOND OPERATION: July 21st, 1878. The button instrument, which could be introduced six and one-quarter inches, passed the stricture in four minutes with eighteen elements of Siemen's, and was withdrawn without meeting any obstacle, although the button had the thickness of a bougie No. 12. The patient experienced no pain and left town on the second day after the operation, feeling perfectly well.

Previous to Aug. 12th, 1882, Dr. Robert Newman, of New York, had operated upon 2,392 cases SUCCESSFULLY. I will quote in full two of his cases:

Case 2,131. Traumatic impassable stricture of nine years standing, treated successfully by the third method of Electrolysis. Came under my observation in 1872. In due time, reports well and passes a sound No. 12 large American scale. Sequel: The patient has remained well six years, up to 1878. Then he changed his business and mode of living. Having gone West, he traveled constantly in the country, riding either on horseback or in a buggy, over bad country roads in severe weather, and thereby contracted a new stricture. Stricture of urethra, perineal abscess, paralysis of the bladder. He wrote me a long letter from Ohio, that he had acquired this new stricture in the way just mentioned; and for this reason we must call it a new traumatic stricture—certainly not a relapse. The calibre has gradually become so small that his physicians could not pass any instrument, not even a filiform bougie. A perineal abscess complicates matters, as also paralysis of the

bladder. He has no control over his bladder, neither can he pass water, nor retain it; the urine dribbles away drop by drop through an opening in the perineal abscess; wets his clothes and limbs. He wears a rubber urinal, which has to be emptied at intervals by day and by night. Sleep is disturbed. Urine is loaded with triple-phosphates, mucous, pus, blood corpuscles and albumen. His general health is undermined; he is nervous, careworn and emaciated. July 6th. Having come to New York, he called at my office accompanied by his family physician, an excellent practitioner of first-class standing. On examination, the urethra was found inflamed and extremely sensitive. The meatus admits a good-sized sound, six inches and one-half down the urethra. From that point the stricture begins, and no instrument will pass it, no matter how small. Ordered rectal suppositories of opium, camphor and belladonna, and external hot applications. July 8th. After patient manipulations, a filiform bougie passed the stricture, and entered the bladder. Next an electrode bougie, No. 11, French, was introduced and firmly arrested by the stricture; the free end was connected with the negative pole of the galvanic battery. The positive sponge electrode applied over the abdomen closed the circuit. The Electrolysis was kept up with six cells steadily for seven minutes, when the bougie entered the stricture, pushed slowly forward and entered the bladder. Ordered ten grains sulphate quinia. July 9th. Is so much better that he passes water voluntarily. July 10th. Feels well, no trouble; voids urine with full control of bladder, has no straining, passes water easier, with a tolerable stream. July 12th. Steady improvement. July 13th. Quality of urine is improved, less sediment and pus; second electrolysis, as before, with a bougie, No. 14 French, which passes easily into the bladder. Present, Drs. Green and Hund. July 14th. Feels better. No untoward symptom. Not a drop of blood passed from the stricture during or after the operation; has no pain, and passes a very fair stream without difficulty. July 17th. Third seance of electrolysis, in which bougie No. 20, French, entered easily in five minutes, with seven cells current. After this the patient felt so well that he concluded to return home. It will be seen that in this unpromising and severe case, (1st), that electrolysis entered the stricture, while the simple pressure of simple dilation would not do it; (2d), that only weak cu[illegible] used, which I always prefer and recommend;

and (3), that the intervals between the seances were only four and five days. While longer intervals between each seance of electrolysis are preferable, this and many other cases show that it is possible to hurry the treatment if circumstances necessitate such a procedure. Mr. S. left for home, and for a long time I have not heard from him. As the case was not cured when he left, and the stricture only widened to No. 20, French, reasonably the best result could not be expected. Nevertheless the following letter just received from his family physician tells the sequel until the present time:

TROY, Ohio, May 18, 1882—Robert Newman, M.D., N. Y:—It was with great pleasure . . and I hasten to assure you that your patient, Mr. S., has been in the enjoyment of very good health since our visit to you, and your successful passage of the stricture. . . . The stricture has not since closed, and he has been enabled to follow his avocation as clerk. Yours truly J. H. GREEN, M. D.

Measurements and recoveries as set forth in the clinical report of the two following cases, recently under my observation and treatment, are only approximate:

Accurate measurements of the urethra during life, the penis being in a flaccid condition, are probably never made; while perfect recoveries following any known method of treatment very rarely if ever occur:

Case No. 1. Mr. A. J. L., aged 56 years, traveling salesman, nervous temperament, hemorrhagic diathesis, complete atrophy of right testicle, three organic strictures following an attack of gonorrhœa, which was contracted at the age of fifteen.

In 1883 the patient first came under my notice. He stated that when fifteen years of age, he contracted gonorrhœa, which he neglected to have properly treated, that he suffered intensely at the time with pain in the right testicle, which was greatly swollen and very tender to the touch.

After recovering from the attack of gonorrhœa, he noticed that the right testicle was diminishing in size, and when under examination, in 1883, no trace of it could be found. He also stated that, about the same time, he noticed a diminution in the stream of urine, which has steadily decreased in size up to the present time, at which date it could hardly be called a stream, as it dribbles away from the meatus.

During the year 1870 he consulted a surgeon, who dilated the strictures, the dilatation being followed by an alarming

hemorrhage. He was afterwards given a No. 15 bougie, French scale, with instructions to pass it daily for some time, and if the stricture showed a tendency to become smaller, to continue its use at longer intervals. These instructions he carefully followed for some months, but finally ceased, and for the last eight years has been unable to pass any instrument whatever. During this time he has consulted several surgeons, whose endeavors have been followed by no better results.

Upon exploring the urethra I found that a No. 26 bougie, French scale, passed easily down to a stricture located at 4½ inches from the meatus. After patiently and carefully trying for three-quarters of an hour to pass the obstruction, using for that purpose gum and whalebone filiform bougies, I was compelled to desist on account of the profuse hemorrhage, which alarmed both the patient and myself. The hemorrhage was controlled in about ten hours by ice compresses applied constantly to the urethra. The patient was confined to his bed three days and nights, when, having urgent business to attend to, he left for Nevada.

In January, 1888, I was called to attend the gentleman while suffering from acute bronchitis, which confined him to his bed for ten days. During this time he had complete retention of urine, which lasted for several hours, and was relieved by opium and belladonna suppositories, with the internal use of Tr. Ferri Muriat., and had hot external applications.

Upon Feb. 13th he called at my office. He said that something mnst be done to relieve him of his trouble; that he passed his urine with even greater difficulty then when I attempted to pass the instruments in 1883; and that owing to the hemorrhage which occurred at that time, he had refrained from having any other surgeon attempt a like procedure. I advised the use of electrolysis. He consented to the operation, but not without many misgivings as to the result. I ordered him to take a ten-grain capsule of quinine upon retiring, to continue doing so until otherwise directed, and to call upon the following day for the first application.

Feb. 14th. Electrolysis: Urethral electrode No. 21, French scale, insulated with hard rubber, and the Le Clanche battery were used during the entire course of treatment, the patient coming to my office. Current from six cells, time, fifteen minutes; passed stricture No. 1, one-fourth of an inch in length, located four and one-half inches from meatus, and encountered

stricture No. 2. Negative electrode in urethra, positive on perinæum. No pain, no hemorrhage.

Feb. 18th. Current from seven cells; time, fifteen minutes; passed stricture No. 2, five-sixteenths of an inch in length, located five and one-quarter inches from meatus, and encountered stricture No. 3. No pain nor hemorrhage.

Feb. 20th. Current from six cells; time, fifteen minutes; passed stricture No. 3, three-sixteenths of an inch in length, located six inches from meatus, and electrode passed easily into the bladder; no pain nor hemorrhage.

Feb. 21st. Patient went to San Francisco upon business, a distance of seventy-two miles.

March 10th. Passed No. 26, French scale, conical bougie; no hemorrhage; passes full stream. Patient discharged.

March 26th. Saw patient again, and easily passed conical bougie No. 26, French scale. He states that he feels better than he has for years.

Case No. 2: Mr. R. O. W., mason, aged 54 years; four strictures of traumatic origin, perineal fistula, scrotal abscess, complete retention of urine; suprapubic puncture of bladder, electrolytic treatment, recovery.

June 1st, 1881. Mr. W. was employed at the Zellabach Quicksilver Mine in Trinity Co., Cal., and while shingling upon the roof of a shed, fell a distance of fourteen feet, striking the perinæum upon the top of a picket, producing a contused wound and rupture of the urethra just anterior to the juncture of the membranous with the prostatic portion. The blow also severely bruised the urethra from the point of rupture to within three and one-half inches of the meatus, and injuried the left testicle. He suffered intensely at the time, especially when voiding urine, which escaped entirely through the wound. Cold compresses were applied to the injured parts; he took a large dose of castor oil, and awaited the arrival of Dr. Joselyn, of Shasta. The Dr. arrived June 2d, introduced a catheter, drew off his urine and advised his removal. Started for Shasta, June 3d, 9 A. M., a distance of seventy miles. The morning of June 4th he had a severe chill, and another upon reaching Shasta, the same evening. As well as he can remember, no fever supervened. He remained in Shasta from June 4th until June 11th, during which time a catheter was frequently introduced, but he generally passed his urine through the wound

each morning. June 12th, left Shasta for Marysville by rail, arrived the same day, where he remained until June 14th, catheter again passed by Dr. Caldwell. June 14th, started for Sweetland, Nevada Co., distant thirty-eight miles. When about twenty miles from Marysville, wagon overturned, throwing patient down an embankment, where he remained until morning. Arrived in Sweetland, June 15th; Dr. Farley was called, introduced a catheter No. 10, and let it remain; but during the night it escaped from the urethra. June 16th, introduced catheter again, and secured it with point in bladder. June 18th, held consultation; present, Drs. Farley, Joy, Le Fevre and Hoffman. No change in treatment, which consisted in occasionally removing the catheter to cleanse it, and the internal use of flax-seed tea. July 27th. Perineal wound healed and catheter removed. Aug. 1st, urine was detected passing through perineal wound again; attempted to pass catheter No. 10, but failed; passed No. 6. Aug. 15th. Wound apparently healed; catheter removed and patient discharged. April, 1882, complete retention of urine occured, and Dr. Samuels, of North San Juan, was called, but failed to pass the stricture, and relief was obtained by hot baths. August, 1883. retention again occured, when Mr. W. called at Dr. Patty's office in Petaluma, where, after patient and careful endeavors to pass the stricture, failure ensued, and again relief was obtained by hot baths. Shortly after the above date he contracted gonorrhœa. Dec., 1886, a scrotal abscess formed, which ruptured, and urine passed through perineal fistula communicating with abscess cavity. Eventually the fistula closed and the abscess cavity healed.

Jan. 7th, 1888, I was called to see Mr. W., and found him in a tub of hot water, again suffering from retention of urine. Ordered opium and belladonna suppositories, Tr. Ferri Muriat., with hot external applications, from which he obtained some relief.

Upon the three ensuing days, I endeavored to pass the obstruction, using gum and whalebone filiform bougies, occupying from three-quarters of an hour to an hour each day. These efforts were unsuccessful. The patient drank to excess at times, and especially so when in this condition.

Jan. 11th, I was again called to see the patient. He was lying upon a mattress in an old woodshed, and was shaking with cold and groaning with [illegible] thing was saturated

with urine, which dribbled from the meatus and perineal fistula, another scrotal abscess having formed. Found bladder largely distended, fundus reaching umbilicus. Secured room with fire, removed patient, punctured bladder above pubes, removed a large quantity of ammonical urine, with great relief to patient, secured canula in bladder, attached rubber tube to canula, which passed to vessel, ordered a rectal suppository to be used, and left him in the care of a nurse.

Jan. 12th. Patient passed a comfortable night, and feels better this morning. From this date until Jan. 18th, he was put upon a general tonic treatment and ordered to remain in bed.

Jan. 20th. Electrolysis: Electrode No. 21, French scale, insulated with hard rubber, and the Le Clanche battery were used during the entire course of treatment; the patient coming to my office. First application, current from eleven cells; time, five minutes.

Jan. 21st. Current from twelve cells; time, seven minutes.

Jan. 22d. Current from thirteen cells; time, seven minutes.

Jan. 23d. Current from seventeen cells; time, eight minutes. Passed stricture No. 1, one-fourth of an inch in length, located three and one-half inches from meatus, and encountered stricture No. 2. To pass stricture No. 1 required four applications, which caused neither pain nor hemorrhage.

Jan. 24th. Current from eighteen cells; time, fifteen minutes.

Jan. 25th. Current from fifteen cells; time, fifteen minutes.

Jan. 26th. Current from twenty cells; time, fifteen minutes.

Jan. 27th. Current from twenty-one cells; time, fifteen minutes.

Jan. 28th. Current from twenty-two cells; time, fifteen minutes.

Jan. 29th. Current from twenty-one cells; time, fifteen minutes. Passed stricture No. 2, five-sixteenths of an inch in length, located four and one-quarter inches from meatus, and encountered stricture No. 3. To pass stricture No. 2 required six applications. No pain nor hemorrhage.

On Jan. 30th, and each succeeding day until Feb. 9th, a current from twenty-one cells was used for fifteen minutes.

Feb. 9th. Passed stricture No. 3, one-half inch in length, located five inches from meatus, and encountered stricture No. 4. To pass stricture No. 3 required eleven applications. No pain nor hemorrhage during these applications.

On Jan. 26th, he stated that he felt an agreeable sensation of warmth at the site of the negative electrode, which was used in the urethra. This sensation was felt at each application until stricture No. 3 was passed, when he complained of pain. Positive electrode immediately removed from thigh, and negative withdrawn from urethra.

Feb. 9th, 7 P. M., four hours after last application, was called to patient; found him suffering with severe chill. Contrary to instructions, he had exposed himself to draughts of cold air; had been sitting exposed on privy seat for half an hour, and had passed some urine through urethra instead of canula as he had been directed to do. Sulphate Quinia and Dover's powder, each fifteen grains, given immediately, and patient put to bed in warm room. Chill lasted one half hour. Eight o'clock P. M.: Pulse 140, temp. 105, urine passing per canula; skin moist. Ordered Sulphate Quinia and Dover's powder, fifteen grains each, to be administered at 2 and 8 A. M.

Feb. 10th, 6 A. M. Pulse 130, temperature 104; has passed per canula since 9 o'clock P. M., two pints of urine; alkaline reaction; ordered mixture dil. acetic acid. No tenderness over bladder, no tenderness nor pain in perinæum; slight puffiness of scrotum at site of former abscess. Sulphate of Quinia and Dover's powder, 15 grains each, at 2 and 9 P. M.

Feb. 10th, 10 P. M. Pulse 90, temp. 99 3-5. Feels comfortable, no pain anywhere; has passed since 6 A. M., per canula, one pint of urine; reaction slightly acid; has perspired profusely since taking last powder at 8 A. M. Discontinued acid mixture and ordered Hydrag. Chlor. Mit., 12 grains to be given at 11 A. M., and followed by solution of Citrate Magnesia at 3 P. M.

Feb. 11th, 10 A. M. Pulse 84, temp. 99 3-5; has passed per canula, since 6 P. M., two pints urine, reaction slightly acid; had three large and offensive stools, and, with the exception of slight nausea, feels well.

Feb. 12th, 11 A. M. Pulse 72, temp. normal, feels well, no pain, appetite good.

Feb. 15th. From this date until Feb. 22d, the urethra was washed out daily with a 2½ per cent. solution of carbolic acid, while the patient was placed upon general tonic treatment.

Feb. 22d. Feeling better than for many months. No pain nor tenderness in pelvic region. From the above date until M[illegible]nt from nine cells was used for twenty min-

March 15th. Passed stricture No. 4, three-quarters of an inch in length, and located six inches from meatus. The patient complained of slight pain when the electrode passed the stricture, hence it was immediately withdrawn without attempting to reach the bladder. To pass stricture No. 4 required twelve applications.

March 16th. Passes fair stream; slight tenderness at site of old injury, corresponding to location of stricture No. 4.

April 2d. Has continued to improve. No soreness nor tenderness in the pelvic region; passes a fair stream of urine, and takes daily a large amount of outdoor exercise.

It was my intention to pass instruments upon the following morning (April 3d), but Mr. W. had in the meantime commenced one of his protracted periodical sprees, and nothing further was accomplished until April 10th, when a current from six cells was used for ten minutes, the electrode passing easily into the bladder without pain or hemorrhage.

April 13th. Current from six cells; time, three minutes; the electrode passed all the strictures into the bladder; patient passes large stream of urine, and expresses himself as feeling better than for years.

April 15th. Emptied bladder by the use of catheter No. 18, French scale, which passed without any difficulty. Removed canula, which had been constantly worn since Jan. 11th, and instructed patient to call once a week for further examination and the introduction of an electrode if necessary.

In my cases, applications were made with greater frequency than is recommended by other operators. I think that I erred in so doing, although no ill results followed.

The error, however, would seem to establish the fact, that if circumstances demanded, the time of treatment might be shortened without danger to the patient.

Full directions for operating, as outlined by Dr. Robert Newman, may be found in the Medical Record, Vol. 22, pages 200 and 202 inclusive, while the following brief summary expresses the opinions of the gentlemen whose cases have been quoted in this paper:

Dr. Dukeman believes that every operator will be rewarded with success, if he follows that method in operating by electrolysis which experience has shown to produce the best results.

Dr. Glass, in comparing electrolysis with other remedial measures, states, that in his hands, electrolysis has given entire satisfaction.

Dr. Weiss has operated by electrolysis frequently since 1868, and with uniform success.

Dr. Newman considers all strictures amenable to treatment by electrolysis. He can tabulate one hundred cases from private practice, under observation for five and ten years; all are well. He states, that "in the treatment of strictures of the urethra during ten years' practice, electrolysis has given entire satisfaction, and among hundreds of cases not one needed any other method.

The names and favorable experience of many others might be added to those above mentioned, but the want of time will not permit.

It will be noticed that five of the seven cases mentioned in this paper, were of traumatic origin, and it is a well recognized fact, that in the treatment of such strictures many difficulties arise. A choice of the following operatic procedures is at our command, viz: External perineal urethrotomy, with a guide if the stricture is passable—without a guide if the stricture is impassable; internal urethrotomy, divulsion or electrolysis.

Does electrolysis possess any advantages that should recommend it to our use, in preference to the other operative procedures before mentioned? There are many surgeons who would answer the foregoing question in the affirmative, and state as their reasons for so doing, the following:

1st. There being little or no pain, anæsthetics are not required.

2d. Hemorrhage seldom occurs, and if it does, is never dangerous.

3d. It is applicable to all organic strictures, no matter where situated in the urethral canal.

4th. Experience has thus far shown, that urethral or urinary fever is less liable to occur.

5th. Strictures so treated seldom require any further operative interference.

6th. Less time is required to effect a permanent recovery.

7th. The patient is not, as a rule, confined to his rooms, and can take outdoor exercise, which being beneficial to his general health, indirectly aids in the success of the operation.

The failure of fifty surgeons to pass an obstruction in the urethra, is only presumptive, and not proof-positive evidence that the stricture is impassable. Another possessing greater manipulative skill might succeed where others had failed; hence

n the clinical report of my two cases I refrained from calling he strictures impassable, notwithstanding the fact that other urgeons had attempted to pass instruments without achieving success.

Believing it the duty of every surgeon to select such operative measures in dealing with his patients, as will accomplish the greatest amount of good attended with the least possible danger, I concluded after mature deliberation, that the choice of operative measures lay between external perineal urethrotomy without a guide, and electrolysis. I chose the latter, fully realizing that the former was a formidable operation, possessing many grave dangers for the patient, and not a few perplexing difficulties for the surgeon, as the following extract will show: "Dr. Th. Billroth between 1860 and 1876 performed external urethrotomy sixteen times, eight patients recovered and eight died; six of the deaths occured in patients with traumatic stricture.

The gratifying results obtained by the electrolytic operations, justified the choice of methods used. The first patient, although possessing an hemorrhagic diathesis which made simple dilatation and careful exploration dangerous procedures, lost not one drop of blood during the entire treatment.

In the unpromising case of the second patient, over one inch and three-quarters of dense stricture tissue of traumatic origin was passed through successfully. But slight pain was complained of at any time, and that only after the strictures were passed, while not the slightest hemorrhage followed any application.

Our opinions relative to the utility of an operation, as well as its superiority over others that have been in use for many years, are likely to change with a more extended clinical experience, and this is possibly true of electrolysis; but were I to hazard an opinion based largely upon the experience of others, rather than my own, I would say that if the success of the past be any index of what may be accomplished in the future, we may reasonably believe that the time is not far distant when electrolysis will be recognized by the profession at large as possessing decided advantages over every other known method in the treatment of organic stricture of the male urethra.

REPORT OF THE COMMITTEE ON HISTOLOGY AND MICROSCOPY.

JULIUS ROSENSTIRN, San Francisco, Chairman.

Mr. President, and Members of the Medical Society of the State of California :

The pleasurable honor of delivering to you the report on the last year's progress in microscopy is not quite free from a painful misgiving of my personal inefficiency for the task. My labors being confined principally to surgery, I naturally hesitated to yield to the President's request to appear before you and help him out of the difficulty he experienced in finding one willing to accept his invitation; but finally my natural modesty and shyness were overcome by the persuasive power of his arguments. I am not one of the world-renowned microscopists, like some of my local brethren, nor do I possess all the latest and largest paraphernalia belonging to our champions. My promotion, therefore, to this distinguished prominence is owing to dire necessity rather than to personal merits, and I trust your expectations will be modified accordingly.

The researches in medical microscopy that command most of our interest at the present time are on the field of bacteriology. It is a comparatively new field, and one that the busy practitioner has hardly time to make himself familiar with. A report on its progress would require lengthy explanations full of tapeworm-words, an expenditure of time not worth the returns. If I should tell you among other lovely things that Lustgarten, of Vienna, has employed, a new and very excellent dye, called Victoria blue, for coloring elastic fibres, and, as it changes only the chromatic element of the nuclei, is particularly adapted to show the phenomena of karyokinesis, or nuclear division of cells; and if I should add, furthermore, that Victoria blue is obtained by the action of phenyl-naphthylamin on Tetramethyldiamidobenzophenon,—you would have a very fair example of that class of information. It seemed to me preferable, therefore, to give you a short resumé of some of the most important practical results of the last year's labors, and I hope this will meet with your approval.

You know everybody thought up to lately, that suppuration ependes in every instance upon the presence of germs in the tisues, and the last researches of Knapp, in New York, seemed to e conclusive in this direction. *Grawitz and de Bary, however, nade some important experiments to disprove the infallibility of this theory. They injected hypodermically, under strict antiseptic measures, sterilized five per cent. solutions of arg. nitr., a germicide in itself; and caused by this means as well as by the injection of turpentine, abscesses entirely free of bacteria. Injections of puscocci (the so-called streptococci pyogenes), suspended in chemically indifferent liquids did not produce abscesses. Their experiments prove that certain chemicals cause suppuration without the aid of germs, and that the cocci can accomplish the same only with the assistance of certain poisonous endproducts of albuminoids, called ptomaines. They originate from the chemical action of the germs on the tissues, are then absorbed, suppuration commences and the cocci now can carry the disorganization process farther into the living tissues. Brieger,† the greatest worker in this department, obtained from Rosenbach's lockjawbacilli, cultivated on sterilized meat, a pure ptomaine which, hypodermatically injected, produced the same symptoms on animals as the lockjawbacilli themselves, either obtained after Nicolaier, from the soil, or like those of Rosenbach, from a fatal case of Tetanus. Brieger named this substance tetanin. Turning from this to bacterial studies, more strictly speaking, we find that the question of infectiousness of leprosy has engaged the attention of several investigators. Melcher and Orthmann have made inoculations with small particles of fresh leprosy tissues into the anterior chamber of rabbits, which they claim to have been successful. They found at the place of inoculation as well as in various internal organs as lungs, liver and spleen, etc., small nodules, in structure like those of leprous origin, and containing what they thought to be leprobaccilli.

‡Wesner, of Freiburg, who repeated the experiments, could not confirm the results. It must be mentioned, however, that he used particles of dried leprotic nodules, whilst Melcher &

*Virchow's Arch. Vol. CVIII. p. 67.

†Deutsch Med. Voch 1887. No. 15.

‡Münch. med. Wochenschirft, No. 15, 16, 17, 18, 1887.

Orthmann operated with fresh material. Wesner observed in two of his cases similar pathological changes as Melcher & Orthmann, but he considers them due to general visceral tuberculosis, and demands for their observations the same explanation. Rabbits certainly are an easy prey to tuberculosis after inoculation of such substances. The bacilli of leprosy and those of tuberculosis resemble each other, as you know, so closely that it is nearly impossible to tell them apart. You see that Mr. Wesner has the sceptics on his side. Let me state right here, on the authority of Dr. Stallard, who has read the item in a Honolulu daily paper, that the criminal, whose death sentence was changed to imprisonment for life on condition of his submittance to experimental inoculations with various leprosy tissues and cultivations, shows now decided clinical symptons of leprosy. About three or four years ago, in Dr. Arning's report of his two years' labors on the Sandwich Islands, he mentions the complete failure of these inoculations up to that time. Now, after four years of incubation, the germs have done their pernicious work; and if further advices confirm these news, the first demonstration of direct inoculability from man to man has been made.

Although hitherto unconfirmed, I must mention yet another step forward in the etiology of a most malignant disease. Quite recently, Dr. Scheuerlen gave to the Berlin Medical Society an account of his researches and methods leading to the discovery of the supposed bacilli of Carcinoma. He could demonstrate and stain them in the cancer-juice only, not in sections. He could isolate and cultivate them easily on cultivation beds of coagulated serous pleuritic effusions, on potato, and in certain cultivation liquids as meat and cabbage infusions. His experiments on animals show six successful inoculations of bitches, each of whom received an injection of three minims of an infusion of a three or four days' old potato or agar-agar cultivation into a posterior mammary gland. Inside the next four days a soft tumor appeared about the size of a waluut, gradually decreasing to that of a hazelnut, but growing harder. The microscopical examination of two such tumors showed a conglomeration of enlarged epithelioid cells containing the bacilli with their spores, they again thriving lustily by the same mode of cultivation. If these remarkable observations should be verified, they will, I believe, be of the utmost importance for our knowledge of carcinoma; until then I deem it sufficient to have mentioned them.

I cannot close this brief review without touching on a very interesting chapter of bacteriology, the battle of different germs with each other in animal organism. Emmerich and Mathei repeating the experiments of Pawlowsky, also tried the neutralization of anthrax or maglinant pustule bacilli by Erysipelas cocci. Their results were much more favorable than those of their predecessor and they account for this difference partly by the much greater number of Erysipelas cocci they introduced, 8 to 16 millions against only 2000 (Pawlowsky); and partly by the higher virulence of their cocci against Pawlowsky's, who employed cocci weakened by continued cultivation. They obtained complete abscence of general and even local symptoms, if the animals had been inoculated with Erysipelas cocci prior to the introduction of Anthrax bacilli. In every instance where this had been done, all the anthrax bacilli introduced, whether a few only or many millions, were found to be destroyed after a maximum of seventeen hours. You will easily perceive what an outlook for therapeutical triumphs is opened and the practical results of Cantani and others in that direction bid fair to realize fond hopes of successful bacterial medication.

After all, this year has borne fine fruits to microscopy, and even if some of their seeds should prove sterile, still enough remains to secure for 1887 an honorable mention. The symptoms of a revolution in bacteriological views are very perceptible. Grawitz's discovery, that certain chemicals introduced into the animal organism cause purulent inflammations without the aid of bacteria, that the injection of certain bacteria suspended in indifferent liquids has no pathogenic effect; but that the presence of Ptomaines is necessary to produce abscesses, is a great blow to the hitherto undisputed supremacy of disease germs as destructive agents. The ptomaines of Brieger in their formidable array—the Cadaverin — the Putrescin — the Mytilotoxin (clam poison)—the Typhotoxin (Typhoid)—the Tetanin —the Tetanotoxin — the Spasmotoxin — the Choletoxin (Cholera), etc., are crowding their respective bacilli into a secondary role, degrading them to the office of messengers and advance agents who travel by various means and in various directions into the tissues, preparing the soil for their royal masters, the Ptomaines. Their absorption gives rise to probably all those symptoms of intoxication in febrile and infectious diseases; and the decision in the final struggle lies between them and the resistive power of the organism they invade. Still the bacilli

and micrococci do not lose any of their interest and I may count perhaps on a continuation of your amiable attention, for a demonstration of a few magic lantern slides of some of the most important varieties. They are microphotographs or rather photomicrographs (Crookshank) from actual preparations photographed on the slides and colored with the original stains of the preparation. Here follows demonstration of 32 various slides, representing specimens of the different forms of pathogenic cocci and bacteria.

An interesting exhibition of photo-micrographs was given by means of the magic lantern, and the bacilli of anthrax, mouse septicemia, cholera, tuberculosis and leprosy, together with sections of different morbid structures, were beautifully shown.

Dr. H. Ferrer, of San Francisco, who opened the discussion, exhibited several specimens and cultures.

Dr. J. H. Stallard, of San Francisco, who also spoke, mentioned that in connection with the inoculations of leprosy performed by Dr. Arning on the Hawaiian criminal, the disease had not spread at the time he published his report, though the bacilli were still found at the seat of inoculation.

REPORT

OF THE COMMITTEE ON

MEDICAL TOPOGRAPHY, METEOROLOGY, ENDEMICS AND EPIDEMICS.

BY J. B. TREMBLEY, M. D., Chairman, Oakland, Cal.

MONTHLY METEOROLOGICAL SYNOPSIS OF CASUAL PHENOMENA FOR THE YEAR 1887.

JANUARY.—The month was cold, frosty and disagreeable, with the exception of a very few days. At 12.30 o'clock on the 6th, the thermometer marked 80 degrees in the sun. The whole day was very warm and spring-like, but the following mornings for quite a number were noted for their cold and frost.

On the 11th, at 4.10 o'clock A. M., an earthquake shock occurred, vibrations from the north towards the south; windows rattled in their casements sufficient to awake light sleepers. Barometer rose on the 28th to the almost unprecedented height of 30.42 inches.

FEBRUARY.—The month was stormy, cold and frosty. On the 5th a storm prevailed of rain, sleet and snow, which covered the foot-hills and extended low down into the valley, giving out a beautiful sight as the pure white covering glistened in the evening sunset. The night was cold, but the morning of the 6th was clear and bright, and the phenomenal sight of so large an amount of deep, pure snow, as the sun came up from behind the eastern hills, attracted the attention of almost every person.

MARCH.—The weather was a good representative for the month—fair, cold and dry. Vegetation came forward as usual for the time of year, and the only phenomena that seemed out of place was the ocean winds that came in on the 28th and 29th, which for several hours seemed like July weather.

APRIL.—Showery and drizzling rains prevailed during the month, interspersed with clear, pleasant, warm days, that promoted rapid development of all kinds of vegetation, and gave good promise of a prosperous agricultural year.

MAY.—A very warm and dry month, although there were some cold, blustering winds from the ocean. They were not continuous as the usual summer winds which are generally recognized and felt during this month. The 28th, however, was a phenomenal day, as the notes taken of the weather show. The horizon was nearly covered with thin, light cirro-stratus clouds; a hot wind or air came up from the north; thermometer at 6 o'clock A. M., exposed to the outward air, in the shade, stood at 82° Fahr.; Hygrometer, 73° Fahr. The thermometer kept rising as the hot wave of air came in from the north north-east until 1.30 o'clock P. M., when it registered 101 degrees of heat in the shade and 122 degrees exposed in the sun. This high temperature continued but a short time, when the wind veered to the north-west, and at 2 o'clock P. M. the thermometer fell to 87° Fahr. in half an hour. A current of cold air and invisible moisture rolled in from the ocean, producing a marked meteorological phenomenon that is seldom observed.

The following table shows the observations taken May 28th of the thermometrical and hygrometrical readings at various hours, also the relative humidity and course of wind.

Time o'clock of the day.		Thermometer and Hygrometer.		Relative Humidity	Course of Wind from
6	A. M.	82°	73°	63.2	N
7	"	84	75	64	"
8	"	86	77	64.8	"
9	"	88	78	62.2	N NE
10	"	93	82	60.9	" "
11	"	96	84	59	" "
12	M.	98	85	56.5	" "
12.30	P. M.	99.5	86.5	57.2	" "
1	"	100	86.5	56	" "
1.30	"	101	88	58	N E
2	"	87	74	51.8	N W
2.30	"	84	74	60.5	W NW
3	"	80	74	74.1	W
3.30	"	76	71	76.8	"
4	"	75	71	81.2	"
5	"	69	66	84.6	"
6	"	64	62	88.8	"
9	"	57	56	93.7	"

JUNE.—Was not what might be called a pleasant month. There was much blustering weather, attended with cool winds, making fires and overcoats quite an acquisition to an individual's comfort.

JULY.—Was also a cold, dry month, with a phenomenal number of overcasts in the mornings that lasted far into the forenoons.

AUGUST.—Was a counterpart of July for unpleasant weather; morning overcasts, with a chilly atmosphere prevailing nearly every day.

SEPTEMBER.—Nothing occurred more than usual for the month, until the 22d. The daily notes of the weather taken each day read as follows: "At 8.30 A. M. the low fog passed away; mid-day, pleasant; 4 P. M., the horizon was nearly overcast with a high fog and stratified clouds; at 6 P. M. a dark purple, black, high fog filled the whole eastern sky, extending upward to a short distance westward of the zenith. At this particular time the bright light of the sun broke through a rift of stratified clouds which hung low in the west; from this bright ray of sunlight, as it passed to the dark, humid overcast, lighted up a magnificent rainbow, stretching over a space in a semi-circular form of not less than 70 degrees in diameter. The colors were of the brightest of the solar spectrum throughout

the whole arch. A second arch or rainbow of 100 degrees in diameter made its appearance to the westward of the first one equi-distant in all its proportions with the first, with the exception of having its colors inverted or reversed from the lower arch and not so brilliant.

The first arch or rainbow in colors upward were *violet*, *indigo*, *blue*, *green*, *yellow*, *orange* and *red*. The second arch upward was *red*, *orange*, *yellow*, *green*, *blue*, *indigo* and *violet*. The colors of these arches were so bright they were reflected far and wide over the horizon for many degrees, the red predominating, giving a tinge of reddish yellow to all objects seen to the eastward.

This phenomenon lasted from fifteen to twenty minutes, and was closed by one of the most beautiful displays of sunset colorings of clouds seldom witnessed, lasting until the sun sank far down in its western ocean-bed.

OCTOBER AND NOVEMBER—Were months of no particular weather unless it was the want of rain, which usually comes in autumn.

DECEMBER—Was truly a winter month for California. The last half was cold and frosty until the 28th, when the rains began to come in showers, thoroughly wetting the ground sufficient for all purposes; barometer fell to 29-59 inches; hard showers with almost a continued drizzling rain for several days in succession. On the 30th, at 8 A. M., while a hard shower was prevailing, a bright flash of lightning, followed by a sound of rolling thunder, passed away in the distance.

As far as the general industries of the State were concerned, no one had cause to complain of the vicissitudes of weather during the year 1887. The principal meteorological phenomena and that which were unusual, but not unprecedented, occurred in January, in an earthquake on the 11th, at 4.10 o'clock A. M. Deep snow on the foot-hills February 6th; excessive heat and hot wind May 28th; peculiar shading or atmospheric coloring of the horizon September 22d, attended with a double rainbow and beautiful sunset as the sun sank into the ocean; also the wintry, frosty weather that continued through the last half of December.

THE WEATHER.

Dr. J. B. Trembley on the Meteorology of Oakland.

Careful Observations Taken Daily During the Past Year—Relative Humidity — Barometrical Pressure — Monthly Meteorological Synopsis — Monthly Rainfall Tables Taken by James Hutchison—Synopsis of Oakland Climate for Ten Years Past—Table of Comparative Annual Meteorology.

Observations taken at 7 A. M., 2 P. M., and 9 P. M. of each day, by J. B. Trembley, M. D. Latitude 37 deg. 48 min. 20 sec. North; longitude 122 deg. 15 min. 20 sec. West; height of barometer above the sea, 24 feet.

BAROMETRICAL PRESSURE.

Tables showing the mean, highest and lowest monthly barometer; also, the monthly range. Barometer not corrected for elevation or temperature.

1887.	Mean monthly barometer.	Highest observed barometer for the month.	Lowest observed barometer for the month.	Range for the month.
January	30.09	30.42	29.82	.60
February	29.96	30.33	29.5	.83
March	30.09	30.25	29 87	.38
April	29.98	30.21	29.70	.51
May	29.94	30.22	29.80	.42
June	29.86	30 04	29.70	.34
July	29.92	30.10	29.51	.29
August	29.83	29.94	29.73	.21
September	29.86	30.05	29.69	.36
October	29.95	30.12	29.73	.39
November	30.02	30.20	29.76	.44
December	30.08	30.30	29.49	.81
Means	29.96	30.18	29.69	.46

BAROMETRICAL RECAPITULATION.

Mean barometer for the year 29.96
Maximum barometer for the year, January 25th, 2 P. M. 30.42
Minimum barometer for the year, December 29th, 7 A. M. 29.49
Highest monthly range for the year ..... .83
Lowest monthly range for the year ..... .21
Yearly range ..... .62

TEMPERATURE

Table showing the mean temperature of the months, warmest and coldest days; also the maximum and minimum temperatures, the greatest and least daily variations, monthly and mean daily Range.

1887.	Mean Temperature of the Month.	Mean Temperature of Warmest Days.	Mean Temperature of Coldest Days.	Maximum Temperature.	Minimum Temperature.	Greatest Daily Variation.	Least Daily Variation.	Monthly Range of Temperature.	Mean Daily Range of Temperature.
Jan	49.40	57.66	43.33	66	35	21	6	31	13.51
Feb	46.11	54.	36.66	66	31	22	3	35	11.14
Mar	53.93	59.33	48.33	76	38	30	1	38	15.09
Apr	54.84	60.66	49.33	76	40	25	5	36	13.63
M'y	57.32	75.66	51.33	87	43	29	3	44	13.67
Jun	59.56	66.66	55.66	85	48	33	6	37	13.76
J'ly	57.53	60.33	55.	71	51	20	4	20	11.13
Au.	58.48	63.66	55.	79	51	25	4	28	12.03
Sep	60.68	67.66	57.66	82	48	29	8	34	15.23
Oct	60.98	74.	53.33	89	46	33	5	43	17.45
Nov	53.35	59.33	43.66	68	32	24	5	36	13.8
Dec	49.54	58.66	42 33	67	35	24	2	32	11.55
M's	55.14	63.13	49.30	74.33	41.5	26.25	4.33	34.5	13.46

RECAPITULATION OF TEMPERATURE

Mean temperature of the year 55.14
Mean temperature of the warmest day, May 28th 75.66
Mean temperature of the coldest day, February 28th 36.66
Maximum temperature for the year, October 10th, 2 P. M. ..... 89.
Minimum temperature for the year, February 25th, 7 A. M. ..... 31.
Greatest daily variation, October 19th ..... 33.
Least daily variation, March 3d ..... 1.
Greatest monthly range, May ..... 44.
Least monthly range, July ..... 20.
Average daily range for the year 13.49
Average monthly range for the year 34.5
Yearly range of temperature ..... 58.

SEASONS.

Mean temperature of winter 49.15
Mean temperature of spring 55.36
Mean temperature of summer 58.12
Mean temperature of autumn 58.33
Difference between the coldest and warmest of spring months 2.39
Difference between the coldest and warmest of summer months 2.03
Difference between the coldest and warmest of autum months 7.63
Difference between the coldest and warmest of winter months 5.85
Difference between the coldest and warmest months of the year 14.87

The following will more particularly illustrate the climate of Oakland for the twelve past years, as it regards the equability of seasons and the difference between the warmest and coldest:

Twelve Years.	Spr'g	Sum.	Autn.	Wint.	Diff.
1876	54.46	60.40	57.75	48.20	12.20
1877	55.18	61.17	57.67	50.39	10.20
1878	55.73	59.36	56.92	50.12	9.24
1879	56.16	60.07	56.73	49.57	10.50
1880	52.97	58.95	55.86	45.38	13.57
1881	56.35	60.27	54.78	51.10	9.17
1882	54.12	60.06	56.44	46 80	13.26
1883	54.63	61.16	54.25	46.20	19.26
1884	55.59	61.89	57.07	47.38	14.51
1885	58.08	61.23	59.52	51.69	13.33
1886	55.06	61.69	56.89	52.12	13.41
1887	55.34	58.54	58.33	49.15	14.84
Means	55.29	60.29	56.85	49.80	14.81

Difference between the warmest and coldest means of the seasons for twelve years is 16.51.

RELATIVE HUMIDITY.

Table showing the relative humidity, precipitation, weather, and direction from which the wind blew, from January 1, 1887, to December 31, 1887, inclusive.

1887.	Mean Relative Humidity.	Rainfall in Inches	No. of Clear and Fair Days.	No. Cloudy Days.	No. of Days in which Rain fell.	No. Foggy Mornings.	No. of Mornings Overcast.	No. Mornings Frost.	S. W. & W.	N. W. & N.	N. E. & E.	S. E. & S.	Calms.
January	90.36	1.57	23	9	7	2	2	16	24	20	4	10	35
February	90.13	7.83	14	14	16	0	0	10	25	10	10	23	16
March	90.59	.71	23	8	9	2	4	7	36	6	1	13	31
April	87.59	2.85	23	7	9	0	5	0	34	16	0	9	31
May	87.12	.10	25	6	4	0	9	0	45	16	4	15	18
June	90.23	.01	25	5	2	0	12	0	48	11	1	12	18
July	90.40	.00	18	13	1	0	22	0	47	14	0	2	24
August	89.19	.27	27	4	2	0	24	0	60	7	1	2	25
September	89.83	.00	27	3	0	2	5	0	23	13	2	9	40
October	82.30	.00	27	4	0	3	9	0	27	18	1	12	43
November	87.41	.78	23	7	4	3	9	0	24	18	1	8	49
December	87.32	3.22	23	8	8	4	8	0	18	17	10	15	38
Means and sums	88.58	16.89	277	88	58	18	97	49	414	159	35	129	358

1095 Observations.

RECAPITULATION OF RELATIVE HUMIDITY FOR THE YEAR 1887.

Mean relative humidity for the year	88.58
Highest relative humidity during the year	100.00
Lowest relative humidity during the year, October 19th, 2 P. M.	41.05
Greatest variation of humidity in 24 hours, October 19th	51.00
Least variation of humidity in 24 hours, February 4th and 5th	0.00
Rainfall in inches during the calendar year	16.89
Rainfall in inches during the agricultural year—1886-87	18.45
Rainfall in inches since July 1st, 1887 (Bay Nursery)	4.26
Number of clear and fair days	277
Number of cloudy days	88
Number of days in which rain fell	58
Number of foggy mornings	18
Number of mornings overcast	97
Number of mornings that frost was seen	49
Wind, direction from southwest and west	414
Wind, direction from N. W. and N.	159
Wind, direction from northeast and east	35
Wind, direction from southeast and south	129
Calms	358

Monthly rainfall as taken in Oakland by Mr. James Hutchinson, of the Bay Nursery, for the consecutive years mentioned.

MONTHS.	1873 Quantity	1874 Quantity	1875 Quantity	1876 Quantity	1876 Days	1877 Quantity	1877 Days	1878 Quantity	1878 Days	1879 Quantity	1879 Days	1880 Quantity	1880 Days	1881 Quantity	1881 Days	1882 Quantity	1882 Days	1883 Quantity	1883 Days	1884 Quantity	1884 Days	1885 Quantity	1885 Days	1886 Quantity	1886 Days	1887 Quantity	1887 Days
July				.10	2																						
Aug.						.18	2																				
Sept.				.15	6																						
Oct.	.60	2.24	.30	4.74	10	.45	4	.57	3	.70	5	.05	1	.40	1	.42	1	.42	2	.25	1	.02	2	.00	1	.01	1
Nov.	.60	9.18	7.83	.25	2	1.62	8	1.85	2	2.58	9	.35	2	.82	7	2.65	9	4.33	7	.55	3	.00	2	.05	1	.10	2
Dec.	10.18	.31	4.10			1.75	8	.31	6	5.09	14	12.57	18	1.49	5	1.14	9	1.15	6	7.79	13	4.33	8	3.60	6	.22	8
1874	1875	1876	1877			1878		1879		1880		1881		1882		1883		1884		1885		1886		1887		1888	
Jan.	5.60	6.15	8.28	4.19	9	10.82	16	3.84	11	1.71	7	10.48	11	2.42	9	1.95	3	3.81	9	1.95	7	8.12	13	1.57	7		
Feb.	1.80	.30	4.87	1.42	7	11.63	17	5.65	9	2.19	9	2.65	10	2.65	10	.70	5	5.25	10	.48	3	.30	4	7.83	16		
Mar.	5.25	1.65	4.55	.96	7	4.80	16	7.96	15	1.70	9	.88	3	4.20	11	3.33	8	8.59	11	1.07	5	2.57	11	.71	6		
April	1.25	.93	.93	.22	5	1.18	6	1.17	12	8.46	18	1.40	8	1.51	8	2.90	8	5.79	10	3.12	9	5.11	11	2.95	5		
May	.75	.10	.45	.33	5	.40	2	1.39	7	1.04	5	.50	6	.15	3	3.50	11	.55	5	.10	1	.30	5	.10	4		
June		1.64	.24		5			.16	1			1.16	2		2			3.03	10	.08	6	.00	0	.05	2		
Am't.	26.03	21.57	28.55	12.36	51	32.33	79	22.55	74	23.84	82	31.84	65	18.19	66	20.22	64	31.10	78	17.95	54	22.21	75	18.45	69		

Mean annual rainfall for 14 years, 24.13 in.

The rainfall in California is rather phenomenal, and depending greatly upon latitude and topography. The average difference of annual rainfall in the State, extending from north-west to south-east, is a little over two inches for every degree, being thirty-four inches at Crescent City and ten inches at San Diego. It is said to increase about one inch for every hundred feet in elevation in ascending the Sierra Nevada.

and micrococci do not lose any of their interest and I may count perhaps on a continuation of your amiable attention, for a demonstration of a few magic lantern slides of some of the most important varieties. They are microphotographs or rather photomicrographs (Crookshank) from actual preparations photographed on the slides and colored with the original stains of the preparation. Here follows demonstration of 32 various slides, representing specimens of the different forms of pathogenic cocci and bacteria.

An interesting exhibition of photo-micrographs was given by means of the magic lantern, and the bacilli of anthrax, mouse septicemia, cholera, tuberculosis and leprosy, together with sections of different morbid structures, were beautifully shown.

Dr. H. Ferrer, of San Francisco, who opened the discussion, exhibited several specimens and cultures.

Dr. J. H. Stallard, of San Francisco, who also spoke, mentioned that in connection with the inoculations of leprosy performed by Dr. Arning on the Hawaiian criminal, the disease had not spread at the time he published his report, though the bacilli were still found at the seat of inoculation.

REPORT

OF THE COMMITTEE ON

MEDICAL TOPOGRAPHY, METEOROLOGY, ENDEMICS AND EPIDEMICS.

BY J. B. TREMBLEY, M. D., Chairman, Oakland, Cal.

MONTHLY METEOROLOGICAL SYNOPSIS OF CASUAL PHENOMENA FOR THE YEAR 1887.

JANUARY.—The month was cold, frosty and disagreeable, with the exception of a very few days. At 12.30 o'clock on the 6th, the thermometer marked 80 degrees in the sun. The whole day was very warm and spring-like, but the following mornings for quite a number were noted for their cold and frost.

On the 11th, at 4.10 o'clock A. M., an earthquake shock occurred, vibrations from the north towards the south; windows rattled in their casements sufficient to awake light sleepers. Barometer rose on the 28th to the almost unprecedented height of 30.42 inches.

FEBRUARY.—The month was stormy, cold and frosty. On the 5th a storm prevailed of rain, sleet and snow, which covered the foot-hills and extended low down into the valley, giving out a beautiful sight as the pure white covering glistened in the evening sunset. The night was cold, but the morning of the 6th was clear and bright, and the phenomenal sight of so large an amount of deep, pure snow, as the sun came up from behind the eastern hills, attracted the attention of almost every person.

MARCH.—The weather was a good representative for the month—fair, cold and dry. Vegetation came forward as usual for the time of year, and the only phenomena that seemed out of place was the ocean winds that came in on the 28th and 29th, which for several hours seemed like July weather.

APRIL.—Showery and drizzling rains prevailed during the month, interspersed with clear, pleasant, warm days, that promoted rapid development of all kinds of vegetation, and gave good promise of a prosperous agricultural year.

MAY.—A very warm and dry month, although there were some cold, blustering winds from the ocean. They were not continuous as the usual summer winds which are generally recognized and felt during this month. The 28th, however, was a phenomenal day, as the notes taken of the weather show. The horizon was nearly covered with thin, light cirro-stratus clouds; a hot wind or air came up from the north; thermometer at 6 o'clock A. M., exposed to the outward air, in the shade, stood at 82° Fahr.; Hygrometer, 73° Fahr. The thermometer kept rising as the hot wave of air came in from the north north-east until 1.30 o'clock P. M., when it registered 101 degrees of heat in the shade and 122 degrees exposed in the sun. This high temperature continued but a short time, when the wind veered to the north-west, and at 2 o'clock P. M. the thermometer fell to 87° Fahr. in half an hour. A current of cold air and invisible moisture rolled in from the ocean, producing a marked meteorological phenomenon that is seldom observed.

The following table shows the observations taken May 28th of the thermometrical and hygrometrical readings at various hours, also the relative humidity and course of wind.

and micrococci do not lose any of their interest and I may count perhaps on a continuation of your amiable attention, for a demonstration of a few magic lantern slides of some of the most important varieties. They are microphotographs or rather photomicrographs (Crookshank) from actual preparations photographed on the slides and colored with the original stains of the preparation. Here follows demonstration of 32 various slides, representing specimens of the different forms of pathogenic cocci and bacteria.

An interesting exhibition of photo-micrographs was given by means of the magic lantern, and the bacilli of anthrax, mouse septicemia, cholera, tuberculosis and leprosy, together with sections of different morbid structures, were beautifully shown.

Dr. H. Ferrer, of San Francisco, who opened the discussion, exhibited several specimens and cultures.

Dr. J. H. Stallard, of San Francisco, who also spoke, mentioned that in connection with the inoculations of leprosy performed by Dr. Arning on the Hawaiian criminal, the disease had not spread at the time he published his report, though the bacilli were still found at the seat of inoculation.

REPORT

OF THE COMMITTEE ON

MEDICAL TOPOGRAPHY, METEOROLOGY, ENDEMICS AND EPIDEMICS.

BY J. B. TREMBLEY, M. D., Chairman, Oakland, Cal.

MONTHLY METEOROLOGICAL SYNOPSIS OF CASUAL PHENOMENA FOR THE YEAR 1887.

JANUARY.—The month was cold, frosty and disagreeable, with the exception of a very few days. At 12.30 o'clock on the 6th, the thermometer marked 80 degrees in the sun. The whole day was very warm and spring-like, but the following mornings for quite a number were noted for their cold and frost.

On the 11th, at 4.10 o'clock A. M., an earthquake shock occurred, vibrations from the north towards the south; windows rattled in their casements sufficient to awake light sleepers. Barometer rose on the 28th to the almost unprecedented height of 30.42 inches.

FEBRUARY.—The month was stormy, cold and frosty. On the 5th a storm prevailed of rain, sleet and snow, which covered the foot-hills and extended low down into the valley, giving out a beautiful sight as the pure white covering glistened in the evening sunset. The night was cold, but the morning of the 6th was clear and bright, and the phenomenal sight of so large an amount of deep, pure snow, as the sun came up from behind the eastern hills, attracted the attention of almost every person.

MARCH.—The weather was a good representative for the month—fair, cold and dry. Vegetation came forward as usual for the time of year, and the only phenomena that seemed out of place was the ocean winds that came in on the 28th and 29th, which for several hours seemed like July weather.

APRIL.—Showery and drizzling rains prevailed during the month, interspersed with clear, pleasant, warm days, that promoted rapid development of all kinds of vegetation, and gave good promise of a prosperous agricultural year.

MAY.—A very warm and dry month, although there were some cold, blustering winds from the ocean. They were not continuous as the usual summer winds which are generally recognized and felt during this month. The 28th, however, was a phenomenal day, as the notes taken of the weather show. The horizon was nearly covered with thin, light cirro-stratus clouds; a hot wind or air came up from the north; thermometer at 6 o'clock A. M., exposed to the outward air, in the shade, stood at 82° Fahr.; Hygrometer, 73° Fahr. The thermometer kept rising as the hot wave of air came in from the north north-east until 1.30 o'clock P. M., when it registered 101 degrees of heat in the shade and 122 degrees exposed in the sun. This high temperature continued but a short time, when the wind veered to the north-west, and at 2 o'clock P. M. the thermometer fell to 87° Fahr. in half an hour. A current of cold air and invisible moisture rolled in from the ocean, producing a marked meteorological phenomenon that is seldom observed.

The following table shows the observations taken May 28th of the thermometrical and hygrometrical readings at various hours, also the relative humidity and course of wind.

Time o'clock of the day.		Thermometer and Hygrometer.		Relative Humidity	Course of Wind from
6	A. M.	82°	73°	63.2	N
7	"	84	75	64	"
8	"	86	77	64.8	"
9	"	88	78	62.2	N NE
10	"	93	82	60.9	" "
11	"	96	84	59	" "
12	M.	98	85	56.5	" "
12.30	P. M.	99.5	86.5	57.2	" "
1	"	100	86.5	56	" "
1.30	"	101	88	58	N E
2	"	87	74	51.8	N W
2.30	"	84	74	60.5	W NW
3	"	80	74	74.1	W
3.30	"	76	71	76.8	"
4	"	75	71	81.2	"
5	"	69	66	84.6	"
6	"	64	62	88.8	"
9	"	57	56	93.7	"

JUNE.—Was not what might be called a pleasant month. There was much blustering weather, attended with cool winds, making fires and overcoats quite an acquisition to an individual's comfort.

JULY.—Was also a cold, dry month, with a phenomenal number of overcasts in the mornings that lasted far into the forenoons.

AUGUST.—Was a counterpart of July for unpleasant weather; morning overcasts, with a chilly atmosphere prevailing nearly every day.

SEPTEMBER.—Nothing occurred more than usual for the month, until the 22d. The daily notes of the weather taken each day read as follows: "At 8.30 A. M. the low fog passed away; mid-day, pleasant; 4 P. M., the horizon was nearly overcast with a high fog and stratified clouds; at 6 P. M. a dark purple, black, high fog filled the whole eastern sky, extending upward to a short distance westward of the zenith. At this particular time the bright light of the sun broke through a rift of stratified clouds which hung low in the west; from this bright ray of sunlight, as it passed to the dark, humid overcast, lighted up a magnificent rainbow, stretching over a space in a semi-circular form of not less than 70 degrees in diameter. The colors were of the brightest of the solar spectrum throughout

the whole arch. A second arch or rainbow of 100 degrees in diameter made its appearance to the westward of the first one equi-distant in all its proportions with the first, with the exception of having its colors inverted or reversed from the lower arch and not so brilliant.

The first arch or rainbow in colors upward were *violet*, *indigo*, *blue*, *green*, *yellow*, *orange* and *red*. The second arch upward was *red*, *orange*, *yellow*, *green*, *blue*, *indigo* and *violet*. The colors of these arches were so bright they were reflected far and wide over the horizon for many degrees, the red predominating, giving a tinge of reddish yellow to all objects seen to the eastward.

This phenomenon lasted from fifteen to twenty minutes, and was closed by one of the most beautiful displays of sunset colorings of clouds seldom witnessed, lasting until the sun sank far down in its western ocean-bed.

OCTOBER AND NOVEMBER—Were months of no particular weather unless it was the want of rain, which usually comes in autumn.

DECEMBER—Was truly a winter month for California. The last half was cold and frosty until the 28th, when the rains began to come in showers, thoroughly wetting the ground sufficient for all purposes; barometer fell to 29-59 inches; hard showers with almost a continued drizzling rain for several days in succession. On the 30th, at 8 A. M., while a hard shower was prevailing, a bright flash of lightning, followed by a sound of rolling thunder, passed away in the distance.

As far as the general industries of the State were concerned, no one had cause to complain of the vicissitudes of weather during the year 1887. The principal meteorological phenomena and that which were unusual, but not unprecedented, occurred in January, in an earthquake on the 11th, at 4.10 o'clock A. M. Deep snow on the foot-hills February 6th; excessive heat and hot wind May 28th; peculiar shading or atmospheric coloring of the horizon September 22d, attended with a double rainbow and beautiful sunset as the sun sank into the ocean; also the wintry, frosty weather that continued through the last half of December.

Habits are easily acquired, but with difficulty overcome; and if pernicious, the evil results are transmitted to generations "yet to be."

As "eternal vigilance" is the price of liberty, so it should be the rule and guide of the professional life of the physician.

There are many medical men — eminent as physicians and surgeons, scholarly and temperate in their social lives, who administer stimulants freely in the treatment of typhoid, and typho-malarial fevers; and urge their use against malarial influences, recommend them to be used before meals, and advise a "whisky toddy" before going to bed to promote sleep or to "cure a cold," and leave but little opportunity for any other course to be pursued. In fact, they never omit the sacred injunction to "take a little wine for thy stomach's sake," and "thine oft infirmities." While alcoholic stimulants may be very useful, when prescribed with care, they cannot fail to become injurious if given freely in the treatment of typhoid fever, and such a course would establish an unpardonable paradox.

In the more grave types of fever, stimulants afford food for combustion—increase the action of the heart—raise the temperature of the body and impair the functions of digestion and assimilation, and their free and continued use must lessen the prospects of a recovery.

The physiological effects of alcohol upon the brain and the organs of secretion, cannot be too seriously regarded, and it must be admitted that the habit acquired while taking whisky or brandy for medicinal purposes is carried into the business affairs of daily life, so that the sale or purchase of a bill of goods cannot be finally settled without a "smile." By this assertion I do not mean to say that the habit of drinking intoxicating drinks is alone acquired in consequenee of spirits being prescribed by the physician in the legitimate performance of his duty. But should it occur that one person became a drunkard through the advice of a physician,—then the profession in a measure becomes responsible for the expense incurred for the support of a "Home for the Inebriates."

As conservators of public morals and guardians of public hygiene and state medicine, we are expected to put forth new plans and lead in every reformatory measure having in view the sanitary and social interests of the people, and for this reason this subject commends itself to attention.

So freely is whisky prescribed in private practice that I am

convinced that ten gallons are given where one quart would better fulfil the requirements for its use.

During the month of December, 1887, seventeen deaths were reported from alcoholism, according to the report of the State Board of Health; and in San Francisco during the year of 1887 there were 187 deaths reported from the same cause.

It may be asked, "What has this society to do with this question?" In reply, I will tell you it has much to do with this and all questions which relate to the promotion of health and the prevention of disease and crime; and no one will deny that intoxicating spirits do undermine the health, increase crime, and bring about premature decay when used to excess.

The force of uncontrolled intemperance develops all the criminal elements in man—depraves his nature—brings ruin to his home—fills our prisons with criminals and our almshouses with paupers, as before stated; and it is within the moral scope of the physicians to prevent men and women from acquiring the habit of using alcoholic drinks, as much as it is in their power to prevent the free use of any drug known to the materia medica.

I am not speaking for an echo to reply—silence reigns in the charnel house to tell the tale of woe—and were the misfortunes of inebriety and dypsomania confined to strong man, the scene would not be so sad; but woman—educated and accomplished woman—surrounded by all the comforts that wealth and refinement can bring, becomes as *weak as man*, in the indulgence of an appetite for intoxicating drinks, and dies of alcoholism or some disease superinduced by alcoholic drinks.

When she becomes a mother, what must be the future habits of her offspring, with the example of drunkenness before them, and a taste for spirits transmitted as a heritage during the process of gestation? Holding to the truth of evolution, we may justly assert, under such conditions, that the criminal element begins to be developed in utero and with the birth of the child, and before it is three days old the nurse will give it a "few drops of gin for the stomach ache or wind colic;" and unless sternly rebuked, at the end of ten days will give a teaspoonful at a time, and report her exploit with a feeling of triumph to the attending physician. Here the unconscious habit may first be formed that leads to future ruin.

However unpleasant it may be to give publicity to these things, my observation and experience justify the course pursued in this discussion, and I do not think my experience

differs from that of many of the leading members of the profession.

I have been told by more than one lady—yes, I will say lady, for such she is by nature, cultivation and the refinements of home—that the first spirit she remembered to have tasted was given to her by the recommendation of her physician, and its frequent use urged upon her against her wish until she formed a habit of taking it, and had no inclination to do without it, and would often resort to stratagem to obtain it. With such living commentaries upon a *habit* leading to inebriety, I sincerely believe it is the duty of the physician to be extremely guarded in recommending the free use of intoxicating drinks to his patients.

Whisky and cod liver oil, I venture to assert, in 99 cases in 100 where they are given together are not so beneficial to the patients as super carbonate of iron in water would be, and yet I would not wholly exclude whisky from the sick room.

Alcohol as a therapeutic agent instead of a beverage is well enough, but the danger lies in the fact that *physical habits* are acquired, which demand the surrender of reason to a morbid desire for stimulants—opium, cocaine and other drugs, which produce dreamy hallucinations.

The *right* to use intoxicating drinks has been so long abused that it has now become a political question, and the negative has been sustained by prohibition laws in some portions of our country; and many believe alcohol should never be used save in the laboratory, and in the interest of art and science; but their method of reasoning I will not discuss.

The evil and corrupting effects of inebriety are too well known to the profession to justify any further discussion upon this subject.

Whatever interferes with individual health and corrupts public morals, Hygiene and State Medicine have to deal with; and for this reason I call your special attention to this portion of the Report of your Committee.

A kindred evil with which we have to deal is the "Opium habit," which is sometimes acquired by the frequent use of the hypodermic syringe. The "Opium fiend" is the most debased of all human creatures, and we find him in the lowest dens of infamy, surrounded by the evidences of debauchery and crime.

This habit is a monster of hideous mien,—a python that invades the homes of elegance and ease, as well as the habitations

of penury and want, and not alone confined to men; and we should endeavor by our prudent counsel and practice to prevent it, and awaken a consciousness of its wrong in the minds of those who are victims of its charms and fascinations.

As this subject was so ably discussed in a public lecture delivered a year ago by a member of this society, I will make no further allusion to it, but refer you to the lecture, which was published, for further information. I refer to Dr. Whitwell's lecture.

In this connection I will briefly call your attention to a new remedy that has had its birth in pharmacy, and is slowly creeping into the therapeutics of our country. I refer to *cocaine.*

This is a powerful, local anesthetic, affecting the nerves of sensation when applied externally, without seeming to have any effect upon the mind; but when given internally produces delusions and hallucinations and leaves the mind in a bewildered state of semi-ecstasy. According to experiments made by German investigators, cocaine has a stimulating effect upon the psychic and motor nerve-centers, increases the rapidity of breathing, quickens the action of the heart, and promotes chemical change in the tissues, and as an after effect depresses all the functions of vital activity.

The sad results produced by its continued use internally, as frequently reported, are in accordance with my observations of its effects; and it is the duty of State Medicine to discountenance its use in the cordials and wines of proprietary medicines. If the reports of those having ample opportunity to judge of its effects can be relied upon, the fascinations for weird slumbers and the phantasy of dreams becomes a part of the daily life of the victim of cocaine until he is bereft of reason and dies a maniac.

The use of tobacco by our boys, especially the smoking of cigarettes, also demands our serious attention; as it tends to develop a moral depravity, and enfeeble the fires of life.

Another question with which State Medicine has to deal is insanity. While the discussion of this subject may seem to belong wholly to your committee on "Jurisprudence and Mental Diseases," there are some things connected with it, which are eminently proper for your Committee on State Medicine to bring before this Convention.

The course pursued in our criminal courts, when the plea of emotional insanity, transitory or hysterical mania is made

by the defense, in mitigation of the crime committed, does not rise to the dignity of an earnest trial in behalf of justice; and as regards the public safety, amounts to nothing higher than a legal hippodrome performed before the bar of justice, where the "medical expert" occupies a place, per force, among the performers; and whose testimony is often prompted and controlled by a *shoddy* sentiment of sympathy, rather than given in accordance with a profound knowledge of the subject he is called upon to explain.

Where sympathy gives coloring to the testimony, it is difficult for the witness to determine the difference between *meum* and *tuum*—the right from the wrong, or that which belongs to himself and that which belongs to science, as the exponent of psychic laws and mental alienation.

With this condition of our courts—with all their ponderable machinery and pro scenic acts, and the readiness and right of of the bar to assist the criminal, it is difficult to find a jury that will convict the murderer; and by such proceedings as are daily witnessed in courts of criminal procedure, the evil-minded are encouraged to commit criminal acts. For the best expert testimony is as much out of place before an ordinary jury as it is possible to conceive; for *polemic pleading* far outweighs with a jury the most valuable testimony.

While the *learned* members of the bar treat the medical expert with great respect, those who have been frequently upon the stand to give expert testimony realize that the questions propounded do not carry with them a line of argument sufficiently conclusive to enable the expert to be fairly understood by the jury; and he is expected to listen to the recital of a long and complex hypothetical question and answer it intelligently, although the jury may not know ten words of what it contains.

Juries, though composed of intelligent men, as a general rule, know nothing of mental diseases and do not comprehend the full import of the plainest testimony; for they have little or no knowledge of the anatomy and physiological functions of the brain—the medium through which mind is manifested, and do not understand the changes that take place in its structure and which causes mental aberrations.

It must therefore appear evident to those, who have given careful attention to this subject, that expert testimony, as now introduced, is of no value as tending to advance the ends of justice, and should b[illegible] with.

When the plea of insanity is made by the defence, the defendant should be examined by a special commission of three, appointed by the governor (or the court), who should inquire into all the facts, and their report should be the testimony in the case upon that subject; and if the prisoner was not found to be insane before and after the criminal act, then the plea of insanity should be overruled.

Until some similar law shall be placed upon our statutes, the party pleading insanity at the time of the alleged criminal act should be sent to an asylum for the criminally insane, and if found to be really of unsound mind, he would be where he properly belonged; and if not insane would receive some of his merited punishment by being held *in duress*, and human life and public safety would no longer be jeopardized by him. So no possible error could be committed by such procedure.

State medicine is greatly interested in this question; and for the better protection of public morals and the dignity of the profession, I would recommend to this society that it instruct its committee on legislation to endeavor to secure the enactment of such a law, or its equivalent, to meet the present emergency.

The time has arrived when the profession, and especially the student of medical jurisprudence, should raise their voices against the present method of giving medical expert testimony in regard to mental diseases; and should endeavor to effect a reform to that extent, that when called into court we may assist in the administration of the law.

There is no other way in which this desirable object can be so well accomplished as by the appointment of a special commission by the governor or the court, as already suggested.

"Calm as the lake that slumbers in the storm," deep and clear, and unmoved by the passions of contending members of the bar, the judge wears the ermine of judicial authority; but is powerless to administer punishment to those guilty of homicide in every case where the pleas of the defendant is based upon the theory of *ephemeral mania*.

The criminal courts—those ramparts of justice—those strong defenses of human rights of other days, are now tottering in the minds of the people; while justice weeps over the frailties and depravity of human nature, powerless to rebuke and punish the evil doer. Where shall the people and the courts look for a reform in these matters but to the medical profession of our country?

One of the most desirable objects to be accomplished in connection with this subject is to secure the erection of a building exclusively for the criminally insane. The medical profession, and especially this convention, is under moral obligations to society to endeavor to obtain such legislation upon this question as will enable the State speedily to erect the needed building; and to do away with the present system of "expert testimony," as it relates to mental unsoundness, for it is worse than useless, and obstructs the proper administration of law and justice.

Having thus briefly called your attention to these important questions of State Medicine, which involve the discussion of moral and psychic forces, I will devote the remaining portion of the report to the Subject of Public Hygiene, which is the foundation of the philosophy of medicine, and involves in its discussion many of the facts and theories connected with the cognate sciences.

In discussing a question of this nature, we cannot fairly proceed without statistics; and to make statistics of value there must be a methodical classification of the same.

In order to accomplish this, I addressed a "Circular letter" to the "Health officer" of 80 of the largest cities of our country; and have received a very general reply to my inquiries, and several "annual reports" of great value.

As the literature upon this particular branch of medical learning is rather limited, I deemed this course the most reliable to pursue, to enable me to formulate vital statistics, so as to give a fair comparison of the relative sanitary advantages of different portions of our country and to determine the different influences operating upon man to produce disease.

The following questions were asked :

What is the population of your city?

What is the death rate per thousand ?

Have you a good system of sewerage?

Is the sewage used to fertilize the land ?

If so, is the public health effected by it?

Has the sewerage of your city been improved within ten years ?

Has the death rate decreased since such improvement ?

Is there more sickness (other things being equal) near the outlet of the sewers than elsewhere ?

Have there been many acres of land reclaimed near your city within ten years ?

Since the land has been reclaimed, do intermittent fevers prevail as before?

Are calomel and *quinia sulphas* used as freely as twenty years ago?

Has the destruction of forests had any influence over the public health?

Has planting trees been beneficial to public health?

What fevers prevail in your State?

Is the death rate greater in the vicinity of slaughter houses than elsewhere?

Do vital statistics show that the interment of the dead within the limit of the city is prejudicial to public health?

Do you consider the "germ theory" of any importance in the study of Etiology?

Remarks:

P. S.—Please sign your full name; give place and date; and I will send you a copy of the report when published—probably by June.

To the question: "Has the sewerage of your city been improved within ten years?" the usual answer is in the affirmative.

To the question: "Has the death rate decreased since such improvement?" the reply, with only one exception, is *no!*

To the question: "Is there more sickness near the outlet of sewers than elsewhere?" the answer is emphatically no! with no dissenting voice.

Here we have the first *data* to aid us in solving the question: "What relation has sewer gas to disease?"

In answering this question I shall not discuss *opinions* and *beliefs* of others, but confine myself to the investigation of facts and endeavor to show that no larger amount of sickness prevail when the sewers are choked up than when they are well flushed by heavy rains or otherwise.

Filth begets a low and depraved condition of morals and is the indirect factor of crime rather than disease, and whenever you find the habitations of men in a filthy condition, you will find the lowest class of criminals. Clean houses are as repulsive to the criminal as the sty is repulsive to those reared in the lap of luxury. Then keep your streets and houses clean and you will impart a healthy tone of morals to your city.

The following tabular statements have been furnished by the Boards of Health in the different parts of the United States for 1887:

CITIES.	POPULATION.	SEWERAGE.	DEATH RATE PER 1,000.
San Francisco	300,000	Fair.	22.18
Oakland	50,000	Not good.	11
Los Angeles	60,000	Not good.	11
Stockton	15,000	No system.	1.8
Sacramento	.....	.....	.....
Concord, N. H	14,000	Fair.	15.78
Salem, Mass	28,070	Good.	20
Haverhill, Mass	25,000	Good.	17
Worcester, Mass	78,000	Good.	19.25
Houston, Texas	30,000	Fair.	10
Atlanta, Ga	63,000	Poor.	20.87
Cincinnati, Ohio	325,000	Good.	19.96
St. Louis, Mo	420,000	Good.	21.08
Chicago, Ill	760,000	Fair.	19.23
Terra Haute	35,000	Fair.	19
Galveston, Texas	40,000	Poor.	19.5
Baltimore, Md	437,155	Surface drain.	19.16
Hartford, Conn	47,000	Good.	20.61
Detroit, Mich	200,000	Good.	19
Galveston, Texas	40,000	No system.	17.45
Mobile, Ala	31,295	Deep vaults.	18.2
Louisville, Ky	180,000	Yes, good.	15
Milwaukee, Wis	190,000	Good.	18
Kansas City, Mo	180,000	Fair.	13.5
Des Moines, Ia	50,000	Good.	15
Memphis, Tenn	62,335	Good.	23.80
Pittsburgh	210,000	Good.	22
Natchez, Miss	11,000	Good.	5
New Haven, Conn	12,500	Good.	8
Omaha, Neb	200,000	Good.	11.64
New York	1,481,920	Good.	26.27
Tallahassee, Fla	5,000	Good.	12
Richmond, Va	100,000	Good.	17.87

From the foregoing statistics it appears, first, that Stockton, Cal., Natchez, Miss., and New Haven, Conn., have the lowest death record, each being below one to a thousand, the first being without decent sewers and the latter having good sewers,—and Galveston, Texas, with surface drainage, and no sewers, and Mobile, Ala., with no drainage, but deep privy vaults, have nearly the same death rate,—the former being 17.45 and the latter 18.2. While Memphis, Tenn., and Pittsburgh, Pa., both with good sewers, have 23.80 and 22, and the

latter city has more than 140,000 inhabitants more than Memphis.

The death rate in most of the other cities does not greatly differ one from the other, whether the sewers be good or indifferent.

Concord, N. H., with good sewers, has a mortuary report of 15 to the 1,000, while Oakland and Los Angeles, with poor sewers, have each 11 to the 1,000. With such facts before us we may very properly inquire. "What influence have sewer gases upon health; and does sewer air ever cause disease *per se?*"

In examining these questions I shall not discuss opinions for the purpose of inviting a controversy, but shall confine myself to the facts as furnished by investigation, and show that no larger amount of sickness prevails when the sewers are choked up than when they are well flushed.

To show that sewer gases exert no important influence over the sanitary conditions of any city, I will call your attention to two cities similarly situated—one on the Atlantic sea board and the other on the Pacific. Boston, with good drainage and a population of 410,376, during the month of February, 1883, had 675 deaths reported, or 19-plus to 1000. During the same year San Francisco, with a population of 250,000, and in the midst of an unusually dry season and defective sewers, had 399 deaths reported, an equivalent of 18-plus to the 1000.

The mortality of San Francisco in 1882 during the month of February was 509, or 25 to the 1000—nearly 25 per cent. greater than in 1883; and during this period the sewers were unusually well washed by the heavy rains between November, 1881, and March, 1882.

With these facts before us, the idea of mephitic gases being morbific factors in the cause of disease must give place to a more careful and intelligent investigation.

The principal gases of sewer air so far as ascertained are the carburetted and sulphuretted hydrogen with a small per cent. of carbonic acid gas, the former being so much lighter than common air ($\frac{4}{5}$) it does not hover about our homes to cause disease, but if confined in large quantity in a room would cause asphyxia and not disease; while the sulphuretted hydrogen gas being ($\frac{6}{5}$) heavier than common air would not rise to any considerable height, as its greater atomic weight would not be sustained; so we may fairly conclude that these gases do not cause any specific type of disease. Here I will repeat what I

stated on a former occasion that the "sewer gas theory" of disease is neither supported by science nor the verified statistics of a city's mortality.

But as a great public convenience and in the interests of public morals there should be the most complete system of drainage by means of deep underground sewers, and when a choleraic wave visits a community, water should be kept running in privies to wash away the excrements as soon as possible, and deodorizing disinfectants employed; for the psychic influence of fear begotten by unpleasant odors upon the body, predisposes one to the morbid influence of the toxic wave and he falls a ready victim to disease.

Pettenkofer presents a theory of "ground air" and "thinks the *germs* permeate this 'ground air,' and whenever the barometric pressure is low or *other conditions* favor its upward movement, the *germ laden air* rises from the soil and enters houses, and causes typhoid fever." [Report of State Board of Health, page 57].

This theory, if correct, does away with the "sewer gas theory," but it is far from solving the problem of ætiology and fails to be instructive;—for it is well known that the fever prevails quite as much when the barometer is up as when it is down; in other words, it does not wait for the barometer to give the signal of attack.

In presenting the most conclusive evidence that sewer gas is non-infectious, I will call your attention to the toilers in the sewers, who spend a large portion of their time under ground in the great *viaducts* of filth, and never become sick in consequence of breathing the so-called mephitic gases. The Boards of Health from eastern cities assure me there is no more sickness about the outlet of sewers than in other places.

But as "a thing of beauty is a joy forever," sewers are a moral necessity, as well as a great public convenience; and every good citizen must realize their importance and should employ the best artificers in their construction, that the beauty of the surroundings of the house—the garden and the lawn, may not be marred by masses of filth.

The public are especially interested in this question—not for the purpose of being less vigilant in their efforts to protect the health of the city—nor to make their homes less comfortable; but that they may not be put to unnecessary expense in tearing up their floors in search of [illegible] 'ed ogre in the shape of

a leaking sewer pipe, which only exists in the mind of some enthusiast upon sewer gas, and possibly the plumber, for there is a "job in it."

It is a serious question to know what is the best disposition to be made with excrementitious matters, for at the present time there is scarcely a river or limpid stream in our whole country, whose waters are not polluted by the drainage from privy vaults, cesspools and sewers of our towns and cities; and this pollution renders the water unfit for the common uses of life; and here is where the ultimate danger to health lies, and not in the sewer gases.

Ice harvested from our northern rivers for summer use in all the delicious beverages of fashionable life is no longer free from contamination and fit for domestic purposes.

Take for example the once beautiful Merrimack River—runing through New Hampshire and Massachusetts, and now receiving the drainage of the cities of Concord, Manchester, Nashua, Lowell, Lawrence, Bradford, Haverhill and many smaller towns, and one cannot fail to realize the impurity of ice taken from the river. But fortunately for us our rivers do not freeze, and freezing establishments are found in most of the large cities.

In solving these questions the medical profession does not want alone reading men—but it wants thinking men—men who not only repeat the great thoughts of others, but who think great thoughts for the world of letters and the world of science; —then it can well boast of greater achievements in the healing art and the greater blessings it gives to human society.

In opposition to the theory of Prof. Pettenkofer, Dr. Buck says: "While it must be admitted that the relationship between the frequency of typhoid fever and the level of the ground water has been proved to exist in Munich (the home of the Professor), the fact has not been as clearly demonstrated with regard to other localities."

This quiet difference of opinion of two eminent men reminds us, *res mutantur*, as we are brought in contact with the advanced ideas of others.

The doctrine of "cellular pathology," taught by Professor Virchow and received with great favor during the past score of years, is now being assailed by some of the leading pathologists of conservative Europe; and even Virchow himself is far more

critical in his teaching, as he now states that the only characteristic "nest cells" of cancer lie deep in the diseased structure and not on the surface.

In 1865 when the cholera prevailed in certain parts of Europe and especially in France, a paradox of peculiar hygienic significance was presented by the relative prevalence and mortality of the disease in two prominent cities — namely Toulon and Marseilles. At Toulon the cholera was much worse than at Marseilles and spread to the handsome and modern quarters among the wealthy people, and to the suburban villas; while at the latter city but few cases were present. It was noted also that in the old part of Marseilles — the main cesspool of its sewerage was almost entirely free from cholera during 1865. At that time the whole city was literally washed with water, night and morning; railway cars, stations, omnibuses, hacks, carriages and every vehicle were fumigated and disinfected: and chlorine gas and carbolic acid were everywhere present, and according to reports, did not seem to have the least influence over the disease.

From this it would appear that "it is not in our stars, but in ourselves" we must look for hygienic protection.

Nor does it appear that local influences had anything to do with the incubation and spread of the disease; for where the streets were the cleanest and the sewerage the best, the disease spread with the most virulence; and hence we are led to conclude that some peculiar and anomalous atmospheric influence is alone the cause of cholera.

The outbreak of this disease at Marseilles on the 29th of June, 1884, was simultaneous with severe southwest storms of wind and rain, which were denoted by violent fluctuations of the barometer, and caused floods in Spain, Austria and Poland. The course of these storms was capricious and seemed to be a whimsical freak of nature.

According to the consulate report of P. H. Mason, resident consul of the United States at Marseilles, "there was some mysterious taint or unwholesome influence of the atmosphere of the whole region of France, which affected people in localities not actually attacked by cholera."

There was also a sudden disappearance of certain birds and insects from the whole of Southern France, and they did not return until the epidemic was over; and the flight of these birds seems to be another evidence of the abnormal condition of the air, as

they did not belong to the class that were migratory in their habits, but were guided by a higher intelligence than man to seek a healthier climate.

These thing are among the interesting and unexplained phenomena which mark the record of an eventful season.

On the 28th of June there was a stifling heat and murky atmosphere hanging over the city, accompanied by swarms of mosquitoes; and the same stifling atmosphere preceded the outbreak of cholera in 1865 in these same cities and on the 5th and 6th of July the disease became epidemic.

As no analysis of the air became a matter of record at that time, it is reasonable to conclude that it was deoxydized, from the fact that ozone introduced into the choleraic wards of the Pharo hospital caused the disease to decrease in virulence.

The scourge which devastated Florence in 1348, the pestilence in 1798, and the epidemics of 1817, 1818, 1832, 1850 and 1865, were all attended by prolonged and remarkable meteoric phenomena.

As cholera prevailed in the Argentine States of South America last year, and is now in Peru and Chili, as an epidemic; it is of interest to note its history and the course it followed as it traversed the globe on previous occasions.

On all former epidemics, as in the present, it has first been found in the delta of the Ganges; then it swept over the entire province of Bengal, and in 1817 reached as far as Hindustan, where it was checked for several years. It then followed along the Mediterranean and Black seas,—broke out in Odessa and spread to Moscow, and other important cities of Russia; visited the eastern coast of Africa, while Cape Colony and the western coast were free from its appearance. It then seemed to return across the Indian ocean—broke out in Calcutta, and at the same time along the borders of the Mediterranean sea; passed up the Danube and several other large rivers, and turned toward the west, as if the morbid elements were marshaling their forces to carry the pestilence to the western hemisphere; and nearly all the marshy, alluvial and calcareous formations of Europe and Asia were visited by the disease; while all the granite formations of these countries were free from epidemic cholera.

In 1840, Professor Graves carefully traced the disease through all its wanderings to this very formation, but offered no explanation.

On the 10th of February, 1832, it simultaneously made its appearance in Edinburgh, Paris and Dublin. Thus we find the disease had been roaming over Asia and Europe for fifteen years before it reached the eastern shores of the Atlantic. On the 8th of June, 1832, it made its appearance in Quebec; on the 10th at Montreal, and about the same time broke out in Ogdensburg, Albany, and New York city; while Nova Scotia, New Brunswick, and the New England States were wholly exempt.

Afterwards, it spread over the Southern, Middle and Western States; and nearly every town suffered from its ravages—except the regions about the pine forests of Georgia and Florida, which were exempt. The disease followed precisely the same course in 1850–1851; and should it again visit our country, it will first make its appearance in the Atlantic States, and exhaust its force upon the shores of the Pacific; for so far as its history has been studied, it travels only in a westerly direction.

In 1851, during its prevalence in St. Louis, the men employed in the great packing house of Morgan & Co., and those living in the immediate vicinity of the slaughter-house, escaped the disease.

At that time, from 500 to 1000 hogs were slaughtered daily; and over 200 men employed in the dressing and packing business. This may seem a little paradoxical, but it has its lesson.

It would be unfair to the subject under discussion to say the erratic course that cholera followed had no scientific significence; but at present the limited knowledge and research upon this question are not competent to give it a clear solution, and for the present we are left in the domain of conjecture. Yet a more careful investigation into the effects of atmospheric changes, and imponderable forces upon the functions of nutrition which fortify the body against disease, may at no distant time enable us to unravel the tangled skein of illogical theories and gain a solution of this great problem.

This leads to the discussion of the "germ theory," which, like the "metallic tractor" and the "numeral theory" of other days, will soon be lost to medical literature; and only be referred to among the errors of the past, when those who are now in the zenith of high expectations for immortal fame will wear the mantle of disappointment about them; *sic transit:*

"And here I now do well prognosticate
To the young gaping heir his father's fate."

No one questions the existence of micro-organisms in various forms in different types of disease, for there are different ferments in the excrementitious elements of the body which mark every variety of the microbe; but *cui bono*, what advantage has practical medicine derived, or what benefit does it expect to derive, from a knowledge of their existence alone, since their presence cannot be detected until the period of incubation or development of disease has taken place?

Even Pasteur himself could not tell whether the children sent to him from Philadelphia had been bitten by a rabid dog; but inoculated them with the remote culture of *rabies*, and afterwards it was learned the dog was not mad—nor did the children suffer.

Sulphuric acid combined with starch will produce sugar—sugar mixed with yeast will produce alcohol; but neither starch nor sulphuric acid mixed with yeast would produce alcohol until fermentation had taken place, and yet no one has explained what molecular change takes place to bring about these results; and is quite reasonable to conclude that other isomorphic changes take place in the body to develop or give birth to every variety of micro-organisms which in every case are the *results* of a hidden cause.

Some of the hydro-carbon compounds are of interest, and may be profitably alluded to in this connection as showing how the same elements differently combined as to atomic weight produce different results.

C 10 and H 16 is the formula for the oil of lemon, and C 20 and H 32 is the formula for the oil of turpentine. Here the same molecules are brought together in the same ratio but in different atomic weight, and we have in one case the oil of lemon and in the other, the oil of terpentine.

These products are the tangible results of chemical skill and science, and their difference is readily determined by our physical senses.

But the chemical changes that are hourly taking place in the laboratory of the human body are not so readily understood; and the question for the physiologist now to prove is, that there is a spontaneous development of the various organisms, dependent upon the different ferments in the body occasioned by the quality and quantity of the food and drink received.

Oxygen taken into the lungs during respiration causes combustion; and carbonic acid gas is given off, while the lung tissue remains unchanged. Food is converted into the elements of blood and nutrition under normal conditions, and the refuse is thrown off in the form of urine and excrementitious matter, in which various organisms are found; and chemical physiology has much to reveal to us, and we should not marvel at any of its revelations.

Chemical reagents develop a force that carries human thought and human language around the globe upon which we live, moves machinery, illuminates cities and fulminates in the clouds amid storms of wind and hail.

The application of this force to the various wants of civilization is the result of the ingenuity of man, and discloses the wonderful powers concealed in the vast arcanum of nature.

This same force is found in the air we breathe, and is dependent for its manifestations upon the humidity, density, expansion and temperature of the air, as witnessed in the electric storms. Its activity varies according to the various geological formations of the earth; and in the absence of data, I assume that it is most active in the granitic formations. During epidemics, as it passes from the earth to the upper air, it carries the *toxic wave* high above animal life and gives special immunities of health to those who live in those regions. Upon this assumption, which is warranted by the history of cholera, we may rationally conclude that the granitic formations of the earth will never be visited by epidemic cholera.

The vaso-motor nerve centers are the first biological factors to announce the presence of the disease, and then stimulants and hot applications are therapeutic agents; but when the algide stage arrives, these remedies are of no benefit. Such changes take place in a very few hours; and can it be possible that the microbe is responsible for the sudden destruction of the vital force of the tissues of the body in so brief a period of time? The idea is absurd!

Reasoning *a priori* from the fact that germs are found in the sputa of persons suffering from disease, and that every type of disease has its specific organism, if we occupy the "standpoint" of the investigations, we would therefore say that germs are the only *materies morbi* of all diseases; yet the presence of germs alone is not *prima facie* evidence that such is the case. But reasoning *a posteriori* we come to a much more complete solution of the

question—assuming our premises are correct—and can explain the cause of their presence upon the physiological theory of "ferments." Yet so great is the renown of him who first gave to the world the "germ theory," that a monument has been erected to his name—called the "Pasteur Hospital."

During the prevalence of cholera in France in 1884, choleric germs with the excrementitious matter of cholera patients were injected into the bowels of animals without causing the slightest effect.

Where, then, is found the alembic of magic power to enlighten the mind—where the crucial test to prove the unerring conclusions of the theory of germs, save in the metaphysical rhapsodies of the investigators? Children that eat green apples will have the colic, and infants that swallow sour grapes, skins and all, will continue to have spasms, whether they come from the germs of original sin or from more recent causes.

The "germ theory" proves nothing but a pleasant recreation to the student of biology and annihilates the *omnia vilae ex ovo* theory, with its proto-plasmic organisms.

It it recorded in the "World's Medical Review" that "Doa and Bordoni-Uffrenduzzi have studied the microbe in cerebro-spinal meningitis (meninge-coccus) and have found that it is identical with that obtained by Steinberg with saliva cultivations, and described by Frankel as the pneumonia microbe. Ideal authors invariably met with this micro-organism in cerebro-spinal meningitis."

From this it would appear to be necessary, after grouping together the rational and physical signs obtained by observation, percussion and auscultation, and making out a clear diagnosis of pneumonia, to examine the saliva under the microscope and see if it were not a case of cerebro-spinal meningitis we should treat instead of pneumonia.

One more example of the "germ theory" will be sufficient to prove its absurdity. It is claimed that the intermittent fever has its specific germ, and the following theory I would present as its *modus operandi* upon the body. The little spirillo-bacillo-bacterio-micrococcus stealthily enters the body; seizes the afferent nerve and shakes the man severely, and lies down amid the fever and gloom of disease it has created to rest. Twenty hours after, it renews the attack—again shakes its victim, and again retires in seclusion for seven or twenty-one days; when, like Rip Van Winkle, it awakens and vigorously assaults the weary

convalescent and brings him back to the tenor of renewed rigors.

Can any one explain how this little "germ" remains in the tissues of the body unobserved during these intervals, the quiet companion of death, and is only discovered after the disease is manifested?

Until such explanation is made, we had better receive the favorable *dictum* of others *cum grano salis.*

When the cholera prevailed in France in 1884, Dr. Koch, the German savant, visited the cholera hospitals at Toulon and Marseilles, and pronounced against using water to cleanse the streets and gutters, claiming that the water kept the microbes alive. This opinion brought out a strong feeling against him, and his theory, by the French government physicians, who publicly announced that he was not the first to discover the choleraic microbe; but that the credit belonged to Pacini, an Italian physician, of Tuscany, who treated the discovery with indifference, as it deserved. Experiments were then made, and "animals were fed and inoculated with baccilli, taken from the alimentary canal of deceased cholera patients, without producing any effect whatever."

Professor M. Semmola, of the University of Naples, in a communication addressed to Frank G. Haughwont, U. S. Consul of that place, says: admitting the theory of the microbe of Koch, I do not hesitate to conclude, after observations upon a large scale, that the anti-microbe or anti-parasitic treatment is not at all, and never will be the proper method to arrest the development of the disease," and the parasitic treatment cannot be used without danger to the patient.

"That which is a matter of certainty to me is, that all the parasitic treatments recommended are but *scientific charlatanism*, sought to be justified by badly made or badly interpreted experiments, all of which prove absolutely nothing.

"I also believe it to be a great error to confound the infection of cholera with the infection of marsh fever. This error was committed by the late Professor Gulbiati, the celebrated Neapolitan physician, who called cholera the '*pernicious fever of the Ganges.*' But to-day this idea constitutes a deplorable pathological and clinical confusion."

While these different opinions of prominent medical gentlemen prove absolutely nothing, they encourage a more careful inquiry into the cause or ætiology of cholera, which may ultimately enable us to [illegible] question and more efficiently

direct our labors in a quarantine. With our present knowledge of the cause of cholera, we may as well undertake to quarantine the rays of the sun as to try to arrest the advance of the choleraic wave in its march of death by the ordinary means employed.

At the present time, quarantines are made upon the presumption that the "germ theory" is correct, and that chlorine is a germicide; but so far as known, labor and money expended upon this theory have never arrested the spread of epidemic cholera; and we are informed by the highest authority,—the leading physicians of the French government, that in 1884, while the cities of Toulon and Marseilles were reeking with chlorine and other disinfectants, the disease prevailed with unabated fury. Here we are reminded that "Sufficient unto the day is the evil thereof," and that "eternal vigilance" must be the rule aud guide of our faith in pubic hygiene. No measures must be left untried in the walks of science to avert an impending calamity; as we, in a measure, shall be held responsible for the sufferings of our fellow-men.

The powers of Boards of Health and quarantine officers should be definitely determined by legislative enactments; and the text should be so terse and plain that no possible misinterpretation could be made of the interest and meaning of the law.

The law should decide whether Boards of Health shall have the power to force contracts to be annulled by interrupting people *in transitu*; and what standing, if any, shall be given to persons in courts of justice, who suffer losses by reason of their detention.

It is of the greatest importance to the profession and the public to have the "State Police Regulations" definitely defined.

When any person suffering with cholera, small-pox, leprosy, or yellow fever is brought to our State, by railroad or otherwise, the State Board of Health should be vested with authority to cause such person to be detained at some place as near the boundary line of the State as possible; to provide a comfortable room, board and physician to take charge of him or her, and to draw upon a special sanitary fund to pay all expenses; and the party so detained and involuntarily deprived of liberty shall have no standing in court in any suit for damages,—nor shall any contract become invalid within the State,

in consequence of such restraint, provided the contracting parties shall afterwards be able to fulfill the contract. The city Board of Health should have the power to close all places of amusement and the public schools, when in their judgment the public health requires such action; and to abate all nuisances which imperil the sanitary condition of the city.

But as the Board of Health and the medical profession do not wish to place themselves in any hostile attitude towards the people, a careful distinction must be made between a *sanitary* nuisance and a *legal* nuisance.

When sewers become obstructed by caving, or otherwise, the Superintendent of streets should be appealed to and not the Health Officer. The Board of Health should not be vested with authority to appoint any one to superintend the plumbing of any private or public building, who shall have power to make or cause to be made any alterations whatever. This should be regulated by a special ordinance of the Board of Supervisors; as legal questions may at any time be involved in such action, and prejudice the public mind against the exercise of such authority and reflect upon the wisdom of the physician.

Another question of great importance, is this: Shall the Board of Health have the power to remove any person from his own house, while suffering from variola, and take him, against his will, to a "pesthouse?" This question should be definitely decided. Sickness is no crime, but a misfortune, it may be urged. Shall a man be deprived of home comforts and have his life endangered, as it oftentimes is, by being taken from a warm bed to a cold ambulance and carried several miles away, again to be put in a cold room, simply because he is sick with a contagious disease?

As the law now stands upon our statutes, I am informed no court of competent jurisdiction can decide this question in the affirmative and give satisfaction to the learned members of the bar; and I would recommend further legislation upon this question, and would have it referred to the Committee on Medical Legislation, as a question in which State Medicine is interested.

The proposition to remove cemeteries and slaughter-houses, for sanitary reasons alone, is absurd and finds no support in vital statistics; and the answers to my questions given by the Boards of Health throughout our country confirm this statement.

Butchers do not get sick in consequence of being about slaughter-houses, and sextons living in burying grounds seldom die before they are very aged. The old song expresses the true situation:

> "His work was done, and he paused to wait
> The funeral train through the open gate;
> A relic of bygone days was he,
> And his hair was white as the foaming sea;
> And these words came from his lips so thin:
> I gather them in; I gather them in."

These are legal questions and must not be associated with questions of public hygiene.

So far, I repeat, as I have been able to obtain information, vital statistics do not show that those living in the neighborhood of slaughter-houses and burying grounds, do not enjoy all the immunities of health with those living in remote portions of towns and cities.

Cemeteries are made pleasant and attractive places of resort for the living as well as the final resting place for the inanimate bodies of men; and no one, while walking among the graves and reading the superscriptions upon tombstones, feels that he is inhaling some poisonous gas that may prostrate him with sickness which is likely to terminate in death.

Those most interested in bacteriology, say the human body serves as a "culture soil" for micro-organisms, and divers theories are put forth to explain their action; but these theories are all hypothetical, and the *rationale* of the action of *germs* remains unexplained by the active adherents to the science of *germology*.

In the interest of sanitary science, in the interest of truth and public hygiene, I oppose the *germ theory* as a fallacy and an obstruction to progressive medicines, without the least practical benefit to mankind; and for a like reason I oppose the "sewer gas theory" as it offers no logical solution to the cause of disease by furnishing vital statistics in its favor, and we are forced to search for some other source to find the true *materies morbi*. Without a knowledge of the cause of disease, we cannot say what special hygienic laws must be observed. In the adulteration of food we find a positive clue to some types of disease—also sleeping in damp clothes.

In the adulteration of food, public hygiene and state medicine are especially interested, and it is the duty of every physician to inquire into the kind of food that is used where there is sickness.

I have alluded to the spontaneous development of different organisms during disease in accordance with the different ferments in the system—not as a matter of *fact* or *belief*, but for the purpose of awakening some new thought, and possibly some new investigation upon the subject; as medicine should be a school of earnest thinking men, for the best result of human labor is not found in the orchard, vineyard and well filled bin of ripened grain, but in the settings of human life, that make men honored in society and useful to their fellow-men.

Respectfully submitted,

WASHINGTON AYER,
Chairman.

DISCUSSION ON REPORT OF COMMITTEE ON PUBLIC HYGIENE AND STATE MEDICINE.

Dr. James Simpson of San Francisco, in opening the discussion, said: This subject, including public hygiene and State medicine is so vast that it is impossible to condense it into a short discussion. One of the Judges had recently remarked that the taking of opium and cocaine had greatly increased. This subject deserved such consideration as would enable us to enlighten the public, and to pass laws to prevent the spread of these habits. There is nothing, perhaps, that the public is more interested in just now than the suppression of crime and the punishment of criminals, especially those guilty of murder. He was in full accord with the remarks of the writer. Anyone who has been in the courts as an expert knows that he goes there with a prejudice for or against the criminal. In the first place, the lawyer approaches him on the question. If the doctor's views are in accord with the theory of the prosecution, or of the defense, he is summoned as an expert. The medical men are scanned over, regarding who and what they are, and their views in reference to insanity. If these are in accord with the idea of emotional insanity, with the idea that a person can one moment be sane, and in another moment so irresponsible as to commit murder, he is summoned on the part of the defense. In court there is no medical man who is not subject to more or less embarrassment. In the first place, let him be as careful in the wordi[illegible] [illegible]nguage as he may be, let

him pass the first examination as clearly and lucidly as possible; he will have to encounter in cross-examination every effort to make him retract what he has said, or to make the jury so confused that it would amount to little, so far as the real truth of the matter is concerned. "Sympathy," as the doctor observes, should not exist in the mind of an expert. There should be no sympathy. But, as I said before, medical men are human; and sympathy belongs to every one that is human. The evils are so great, plain and obvious, that the only remedy is a commission, sitting quietly and alone, viewing the criminal, free from the influence of the lawyer, of friends and of surroundings, to analyze his mental condition. Such a commission, would no doubt, render a report to the jury in accordance with the facts and the real truth. This commission, as the writer suggests, might be appointed by the Governor. The commission might be as large as five, without any danger. It could be selected with a great deal of care, and subject to no cross-examination except some question the jury would require more explanation upon. I believe that we shall never have the criminal law administered as it ought to be, and the guilty punished and the innocent set free, until we have such a commission. The commission should come from medical men, who are in the habit of administering to the ailments of the insane and the sick, because an insane man has evidently a sick mind, if he is insane. This Society should make an effort, and probably by concentration we may succeed in doing something.

Dr. G. G. Tyrrell, of Sacramento, had understood the writer to say that an asylum for the criminal insane was in course of erection. This was an error. A bill had been prepared and was presented to the Legislature in 1887, but failed to pass (*vide* TIMES, 1887, p. 35).

Dr. W. P. Gibbons, of Alameda, inquired the number of insane who had been sent to the asylums from the State prison, and whether there were liberated at the discretion of the authorities at the asylums.

Dr. Grover, of Berkeley, said: When criminals are deemed insane by the legally constituted commission, connected with the State prisons, consisting of the warden, captain of the guard, and the physician, they are sent to the asylum. When the authorities at the asylum deem them to be sufficiently sane, they return them to the prison to serve out their term. This

subject has been frequently agitated, and has always been one of great importance. Criminally insane are sent to the State prisons for murder. I have several of them in my mind who are no more insane than any person in this room. During the time that I was at Folsom, seven or eight were sent to Napa and Stockton. We had to send them because we had no place to put them, unless they were kept in solitary confinement. The subject of expert testimony is of the greatest importance. The medical witness was frequently not examined or given an opportunity to explain. He was asked hypothetical questions, and required to answer yes or no. It could therefore be seen how valueless and misleading this class of evidence frequently was.

Dr. J. W. Robertson, of Napa, urged the importance of this question. The criminal insane received at Napa were not segregated, as the institution was overcrowded. There was no difficulty for a criminal to escape if he had sense enough to do so. He deprecated the practice which existed of sending criminals to the asylums without the regular commitment, as they were thus in perfect ignorance of the cause of insanity or of its form.

Dr. Walter Lindley, of Los Angeles moved the following resolution, which was adopted:

Resolved, That this Society especially endorses that portion of Dr. Ayer's paper referring to expert testimony, and that it be referred to the Committee on Medical Legislation, with a request that they take active steps to have it incorporated in the laws of the State.

ASPIRATION IN SYNOVITIS OF KNEE-JOINT.

EIGHTEEN CASES OPERATED ON; ALL TREATED SUCCESSFULLY.

REMARKS ON OPERATION AND FULL DETAILS OF TREATMENT,

AND

COMMENTS ON USE OF ORDINARY CRINOLINE FOR STARCH BANDAGES, ETC.

By E. H. WOOLSEY, M. D., of Oakland, Cal.

About five years ago it became a general practice with me to thoroughly explore, by means of a hypodermic syringe, or the small trochar of an aspirator, suspected accumulations of fluid resulting from contusions, strains, etc.

These explorations were always made with strict antiseptic precautions, viz.: the cleansing of instruments, and my own hands, and the surface operated upon by a 2 per cent. or 3 per cent. solution of carbolic acid; and the subsequent covering of the puncture with absorbent cotton, wrung out of said solution; and over this, a thick layer of clean, dry cotton batting—held in place by a flannel bandage.

In no case had I the least cause to regret the exploration; and in no instance was it followed by the least sign of local or constitutional disturbance. Thus from my own experience I came to regard antiseptic exploration as a perfectly safe operation.

In dealing with knee-joint cases, it afforded peculiar satisfaction to be able to safely and definitely determine the character of the contents of inflamed bursae and of the cavity of the joint itself.

During some of these earlier explorations, in cases of synovitis of the knee-joint, where the pain from the accumulation and pressure of fluid was almost intolerable, I found that the aspiration of even a small portion of the fluid, uniformly afforded relief from pain—more perfect and prolonged relief than that obtained from any and all other measures; and that

the operation, unlike most other local measures, was well tolerated by the patient. I found that I could use the largest trochar of the ordinary aspirator, as safely as the hypodermic syringe needle; and although I sometimes moved the canula about within the joint, touching the cartilaginous surfaces while aspirating, for purposes of exploration; yet no aspiration of mine was ever followed by the slightest sign or symptom of injury, but on the contrary, every and each aspiration, however imperfectly performed, was invariably followed by improvement.

After going through this experimental work of exploration, incidental slight aspiration, partial aspiration, and one or more complete aspirations of the knee-joint in a few cases of synovitis, (all of whom ultimately recovered); I became thoroughly convinced that antiseptic aspiration of the knee-joint in all cases of effusion or fluid accumulation within the joint, is not only a perfectly safe procedure, but is the most rational, and by far the most successful treatment known; and moreover, less painful to the patient than any other mode of treatment.

Fortified by the foregoing experience, in 1884, I began to treat knee-joint cases systematically, and in that year performed the operation of antiseptic, complete aspiration of the knee-joint in (three) cases of synovitis, resulting from contusion and strain. In these as in subsequent operations, after the use of antiseptic protection at the point of puncture, the knee was compressed by thick layers of cotton batting and by snug bandaging with flannel rollers—from the toes to the middle or upper third of the thigh; and over this a starch bandage snugly applied. The limb extended in easy position upon a posterior splint, the latter retained by a flannel bandage and kept on for two or three days as a drying-splint, the limb elevated on pillows. In the first case:—

CASE I. S. J. M.—There was so much swelling from tight bandaging that the starch cast had to be cut open and additional starch bandages applied. After this, patient suffered no inconvenience or pain. In ten days dressing had become slack and was removed; the knee under pressure of bandage presented an appearance of fullness such as is usually observed from that cause, but there was no fluctuation; and upon exploration with a hypodermic syringe, there was no effusion in the joint. The limb was redressed as before, but with less compressing, and with more starch bandages. A drying-splint was applied and left on for three days,

at end of which time it was removed—the starch cast being dry and firm. Patient was allowed to get up and go about on crutches, except when swelling of the toes occurred; when he was required to lie in bed with leg elevated on pillows (this is my rule with regard to such swelling). This cast was removed in three weeks, there was no return of effusion; the cure was perfect, and the patient discharged. There was slight stiffness of the knee, but not enough to require treatment, and besides in this, as in subsequent cases, I considered it best not to produce any special strain of the joint by manipulation; and in this, as in most subsequent cases, it was found that in the exercise of walking and accidental movements, a useful degree of mobility was brought about in the course of a few weeks.

This patient has worked steadily ever since his discharge, and has not had the slightest return of knee-joint trouble.

CASE 2. A. M.—A frisky young man tore off his bandages and went to see his girl three days after operation. On the fifth day I reaspirated the knee in which effusion had returned, and redressed. Though cautioned against getting up, he got out on crutches two days after, and sent for me that night on account of severe pain from swelling. To punish him, and not to punish myself, I remained in bed; visited him on the following day; there was great swelling and pain; removed dressing and applied gentle compression, by means of very thick layers of cotton batting over the knee, and a flannel roller gently applied to entire limb—the latter well elevated on pillows. Three days after, the swelling had receded, except at the knee; a re-accumulation of fluid in joint was evidenced, both by fluctuation and by exploration with a hypodermic syringe. The knee was again aspirated, and firmly compressed, and the entire extremity, from toe to hip, put up in plaster of Paris, with a long outside splint reaching to axilla and bandaged to trunk; pillows were taken from under his head and put under his leg. From this time onward there was no back-set, though recovery was slow; and the subsequent stiffness more pronounced than usual, in consequence of a bad beginning. During the course of treatment, which occupied about six months, this patient had numerous accidents, such as being thrown from a buggy, falling down stairs, etc., etc.; but there was no further return of effusion. He wore plaster casts for three months, a starch cast for more than a month, and an elastic knee-cap for several months after; and gradually and perfectly recovered.

CASE 3. J. A.—A short case; no swelling occurred after the first dressing. There was no return of effusion. After the third dressing, patient was allowed to go about on crutches. The fourth week after the operation the knee seemed perfectly well, and patient returned to his daily work, with instructions to wear an elastic knee-cap for safety, for two or three weeks. There was no stiffness in this case. Patient has not had the slightest return of trouble at his knee since that time.

CASE 4. C. R., age 36; engineer.—Sprain of left knee and fracture of cartilage. Admitted to Oakland Hospital March 30th, 1885—ten days after injury. Large effusion in joint. Aspirated three ounces clear fluid. Dressed as before described. Ten days after admission patient had severe bilious attack, and this was followed by pneumonia of the left lung. The lung disease became so serious that but little attention was given to the knee beyond keeping it elevated in an easy position.

May 15th. Starch cast removed; small amount of effusion, but no tenderness on pressure, or pain, when at rest in an extended position; though movement of joint caused pain. Re-dressed with compress and starch, and elevated pillows.

May 25th. Patient convalescent from pneumonia. Less effusion in knee-joint, and no tenderness, and easy methodic movement caused no pain; but forcible or surprise movements, or twists, caused very severe pain. Put up in starch cast which was worn until July 5th, when only sequel of injury was slight stiffness. Patient was then discharged and went to work. For a time there was a feeling of soreness after working all day, but by means of showering knee at night with a pitcher of hot water, and simple rubbing with simple liniment; this gradually decreased, and in the course of two months, the exercise of work effected a useful degree of mobility. I saw this patient lately and his knee is still sound.

CASE 5. W. L., aged 44; carpenter.—Admitted to Oakland Hospital July 16th, 1885. Synovitis of left knee, from contusion four days previously. The contusion was very extensive. Limb lightly bandaged with gauze, elevated on pillows, and kept constantly wet with lead lotion for three days; when the effects of contusion of the skin had for the most part disappeared; but the synovitis, and effusion within the joint, had increased, and the pain therefrom could not be controlled by anodynes. About four ounces of clear amber-colored fluid was aspirated. Dressed with compress, starch and drying-splint.

In two weeks, dressing had become loose from shrinkage of limb, and was removed. There was no return of effusion, and no pain or tenderness. Re-dressed as before, and after starch cast dried, patient was allowed to go about on crutches.

Sept. 1st. Patient allowed to walk with cane. There was some stiffness, but no other sequel of injury. For a few days felt some soreness after exercise; but this disappeared under use of hot water showering, and on Sept. 10th, the joint was quite supple, and patient discharged recovered, and has not since had any trouble with knee-joint.

CASE 6. Age 47, brakeman. — Admitted to Oakland Hospital Jan. 4th, 1886. One day after injury: Severe contusion inside of right leg, and swelling of knee and leg. Treated at first by compression, starch cast and elevation only. Jan. 11th: General improvement, except great pain in knee-joint, and other evidence of acute synovitis. Jan. 12th: Aspirated 1½ ounce clear serum, and put up in compress, starch, etc.; pain disappeared at once, there was no return of synovitis, and the knee required no further special treatment. The case was complicated by the injury at outside of leg, but on April 5th, patient had fully recovered. There was no stiffness of knee in this case.

CASE 7. H. A. H, age 38, locomotive engineer. — Admitted to Oakland Hospital Jan. 11th, 1886. Effusion in bursa over patella of right knee—"Housemaid's knee"—caused by habitually bending knee and sitting on foot while handling lever. Walked on crutch and suffered great pain at knee.

Jan. 12th. Aspirated 6 drachms of thin transparent fluid and put up; compress, starch and drying splint, — leg elevated on pillows. Pain entirely relieved by operation, and did not return.

Jan. 20th. Cast loose and removed; no return of swelling or effusion. Re-dressed as before.

Feb. 1st. Allowed to get up and walk about.

Feb. 8th. Dressing removed, knee seemed perfectly sound and free from stiffness.

Feb. 10th. Patient discharged, — has been ever since well. (Introduced this bursal case as illustrative of the wide application of aspirating treatment at the knee.)

CASE 8. T. McD., age 31, brakeman. — Admitted to Oakland Hospital April 18th, 1886: Synovitis of right knee-joint from sprain 6 weeks previously. Had been disabled most of that

time, though occasionally worked a day or two after a few days rest. There was distinct fluctuation; the patella was raised from the joint by fluid distention, but the greatest accumulation and pressure was under the tendon above the patella. There was great tenderness all about the joint—greatest at the outside. He had no sharp pain, but a steady dull aching, so severe that he could not sleep or have a moment of complete rest.

Apr. 19th. Aspirated about four ounces of turbid, semi-purulent fluid. I had but little hope of this case, and did not feel like applying a permanent dressing and conceal it from view for a considerable time; so only applied the compress, bandaged with flannel, and elevated on pillows (not using starch, cast or splint). Patient had no pain whatever after operation.

Apr. 21st. No return of swelling or of pain. Re-dressed as before, and placed on posterior splint.

Apr. 25th. No swelling, tenderness or pain. Re-dressed as before.

May 2nd. Success seemed assured, no pain or tenderness or sign of return of fluid in joint. Put up in plaster of Paris; allowed patient to go about on crutches.

June 5th. Plaster cast removed; knee seemed well. Patient allowed to walk about with a cane,—went to San Francisco that day, walked about a good deal; that night knee was feverish and somewhat swollen, but there was no fluctuation. The knee was showered well with hot water, and was well elevated on pillows during night, and on following morning fever and swelling had abated. By cautiously lying in bed with leg elevated several times a day, especially after much exercise, and by frequent showering with hot water, the feverishness and swelling, and tendency thereto, arising from exercise, gradually disappeared. Under this treatment, — alternate exercise and rest,—the mobility of the joint was restored; and on June 30th, patient was discharged fully recovered, and soon after resumed his work. I saw him at the beginning of the present year, and he informed me that he had not had any trouble with his knee.

CASE 9. B. W. W., age 20, brakeman.—Admitted to Oakland Hospital May 14th, 1886. Acute synovitis of left knee, from sprain four days previously. Had pain, especially on movement, from date of injury; but did not quit work until the morning before admission, when he found himself unable to get out of bed on account of the swollen, feverish and painful condition of joint. The swelling continued to increase, and he

had to be carried carefully to the hospital. Pain was of a dull aching character, which numerous local applications had failed to relieve; and which was only temporarily relieved by large hypodermic injections of morphia.

Aspirated knee, and drew off three ounces of transparent fluid; applied compress, starch cast, and drying splint. After operation, patient did not suffer the slightest pain when the limb was kept at rest.

June 3rd. No swelling or return of fluid. Flexion of leg caused some pain. Re-dressed as before.

June 5th. Starch cast dry, and patient allowed to go about cautiously on crutches.

June 28th. No swelling or tenderness, or effusion; but even slight flexion of leg caused some pain; re-dressed as before.

July 20th. Starch cast removed. Recovery seemed complete. Forced flexion of leg caused pain, but slight muscular flexion did not. There was some stiffness at knee, but patient was able to walk about on level ground without even a cane, and on following day was discharged.

He visited my office several times afterwards and complained of soreness of knee, after taking much exercise, and slight swelling of entire limb at evening. Little by little, however,—showering the knee with hot water and elevating leg on pillows, after considerable exercise,—he improved; and on Sept. 1st resumed his occupation. He has since been perfectly well.

CASE 10. R. W. M., age 30, grocer. — July 31st, 1886. Acute synovitis of right knee from contusion and strain four days previously. Knee and leg much swollen; applied compress and bandaging of entire limb elevated on pillow.

Aug. 2nd. Swelling of knee and leg diminished, but distinct fluctuation of fluid in knee-joint, latter very painful. Aspirated three ounces of clear serum; applied compress and starch cast.

Aug. 3rd. Patient became restless during night and got leg off pillows, and foot became so swollen as to require a general re-dressing.

Aug. 8th. Swelling generally subsided, but slight return of effusion in knee-joint. Re-dressed as before.

Aug. 14th. Some increase of fluid in joint, probably result of patient getting up and going about on crutches against orders. Re-aspirated nearly two ounces of clear fluid, and put up with compress and plaster of Paris to entire limb.

Aug. 20th. Cut cast and removed anterior half. Very slight return of effusion. Re-applied compress and same cast.

Aug. 28th. No effusion; applied compress and new plaster cast, which patient wore until October 14th, going about meanwhile at his work. Upon removal of cast, there was some stiffness of knee, and some fullness and thickening; but there was no pain or soreness, and no effusion. An elastic knee-cap was ordered to be worn during day, to steady the knee and to prevent accidental strain. Hot water showering was ordered morning and night, followed by application of oleate of mercury. This treatment was continued until December 17th, when patient was discharged fully recovered. He has been working steadily since, and has had no return of trouble at knee.

CASE 11. G. W. E., age 23, brakeman; admitted to Oakland Hospital April 8, 1887; synovitis of left knee, caused by sprain a month previously. He was disabled a few days after injury; worked for a few days, and was again disabled; and this was repeated. Knee greatly swollen, feverish, tender and painful. Pain generally of a dull aching character; but at times, especially on movement, was sharp and severe.

Aspirated at point of greatest detention,—outside of knee above patella, and withdrew four ounces of clear amber-colored fluid. The relief from pain was instantaneous, and permanent. Dressed with compressed starch cast and drying splint; and elevated limb on pillows.

April 14th. Cut off anterior portion of starch cast. Swelling and tenderness had for most part disappeared, and there was no return of effusion. Compress re-applied, and an additional starch cast,—the posterior part of old cast retained in situ, serving as a drying splint.

April 21st. Swelling and tenderness disappeared. No effusion in joint; extremity put up in plaster of Paris, and after drying for two days, patient allowed to get up and go about on crutches. Soon after, he laid aside his crutches, saying he could walk as well without them.

May 19th. Plaster cast removed; recovery seemed complete. There was slight stiffness at knee, and slight soreness after exercise, both of which, however, gradually disappeared; and patient was discharged May 31, and two weeks thereafter returned to his work. He has had no trouble with knee since.

CASE 12. W. W. W., aged 46; grocer.

April 25th, 1887. Synov[illegible] knee, and fracture of

cartilage at inside. Reduced cartilage by pressure, and applied compress and starch cast, and elevated leg on pillows.

April 28th. No special improvement; knee painful; effusion in joint evidenced by fluctuation, an dexploration by hypodermic syringe; aspirated two ounces of clear fluid, pressed back cartilage which had again become displaced, and applied compress, and starch cast with long drying splint.

April 30th. Starch dry and firm, and removed drying splint; cut a section of cast over knee to obtain a view without removal of entire dressing. There was no effusion, compress was re-applied and the window-part of cast bandaged in place.

May 6th. No return of effusion, swelling, soreness or pain. Pain had been relieved by operation and had not returned; re-dressed with starch cast.

May 12th. Patient allowed to get up and go about on crutches.

May 13th. Slight accidental wrench of the knee, followed by considerable pain. Rest in bed with limb elevated.

May 14th. Return of symptoms of synovitis. Re-aspirated, two ounces of clear fluid. Re-dressed with compress, and starch cast with drying splint. Pain immediately subsided.

May 20th. No swelling, soreness, effusion or pain; applied plaster cast, and after drying, allowed patient to go to work on crutches.

May 28th. Cast removed; patient discharged apparently well, with directions to wear an elastic knee-cap.

July 11th. Called at office and complained of soreness of joint, especially after walking up-stairs, getting on and off street-cars, etc. The injured cartilage still remained in place, but there was a very slight return of effusion in joint. Advised rest in bed for a day or two, and the use of hot water showering and application of oleate of mercury three times a day.

July 18th. Walking about at work; no soreness of joint, and but very little if any effusion; elastic knee-cap caused swelling of leg and foot, and to prevent this, ordered an elastic stocking which would reach up and overlap the elastic knee-cap.

October 7th. Patient called to ascertain if he should continue to wear the elastic stocking and knee-cap. Advised him to do so, although knee appeared perfectly sound; but his natural weakness of joints, together with the history of return of effusion after a very slight strain, demanded extra caution.

November 16th. Strained knee-joint again, while on step-ladder day before. Some return of synovitis.

November 17th. Re-aspirated 1½ ounces of clear fluid, and applied compress and starch cast.

November 25th. No pain or effusion. Re-dressed as before.

December 12th. Cut window in cast over knee for examination. No effusion.

December 19th. Removed cast. Knee apparently well. Discharged with direction to wear an elastic knee-cap and stocking, which he wore while at work for about a month. He has worked continuously since, and has had no return of trouble at knee.

CASE 13. S. S., Painter, age 35. Admitted to Oakland Hospital May 5, 1887. Very severe contusion and extravasation about right knee, with extensive synovitis and hemorrhage in joint; from being thrown from a buggy and dragged on the ground ten days previously. Had been treated at his home by hot and cold compresses, and by bandage compression; and while some improvement had been noticed in the integument, the pain and tenderness from the pressure of fluid within the joint had not for one moment abated, but on the contrary had increased; and on his admission to the Hospital he was greatly prostrated by the effects of pain, loss of sleep, loss of appetite, fever, etc. Pulse 120, temperature 102°. Aspirated four and one-half ounces of thick, dark, bloody fluid, at times in passing so thick as to occlude the canula of the aspirator, but which was withdrawn, under a strong vacuum. I feared from the character of this fluid, which had obviously been determined, partly by hemorrhage within the joint, and partly by delay, and from the constitutional disturbance and prostration of the patient by pain, that there was not much hope from operation; and in this apprehension I was joined by several physicians present. However, the knee was well compressed and the extremity put up with starch and drying splint, and elevated on two pillows. Patient felt immediate ease after the operation, and at no time after had sufficient pain to disturb his rest.

May 6th: Pulse 100, temperature 100°.

May 10th: Pulse 86, temperature 98 3-5. General improvement. Dressing removed. Slight re-accumulation of fluid in joint, determined by fluctuation and exploration by hypodermic syringe, though not enough to cause any pain whatever.

Re-aspirated one and one-half ounces of dark, bloody fluid, somewhat thinner than that removed by first operation. Re-dressed as before.

June 8th: Cut off anterior half of starch cast; knee-joint explored; no return of effusion and no special tenderness on pressure, though the skin from the effects of contusion was yet a little sore. Re-applied compress, and applied an additional starch cast, and kept patient in bed with limb elevated.

June 15th: No pain, not even on slight flexion of leg; but there was yet some thickening of knee, and very little reduced at inside. Patient lived out of town and wished to go home to his family, and, as a matter of safety, the limb was put up in a light plaster cast; and on following day he was discharged from the Hospital, directed to use crutches for two weeks, and to lie down and elevate limb whenever the toes should show any swelling. He very soon laid aside his crutches and resumed the direction of his work—wearing the plaster cast.

July 10th: Removed cast. Joint slightly thickened and stiffened—only admitting of slight movement, but patient could walk on floor or level surface without inconvenience or limping, and could go up and down stairs, and get in and out of a buggy without pain. With the exercise of daily work, and by means of hot water showering once or twice daily, he acquired, in the course of another month, a useful degree of motion at the knee. He has since been perfectly well.

CASE 14. L. W. S. Age, 34. Conductor. Admitted to Oakland Hospital May 12, 1887. Synovitis of left knee, from sprain three months previously. Worked most of the time during that period, but was occasionally disabled for three or four days. Slight swelling and fever of knee; aching pain, aggravated by movement, and partially relieved by perfect rest, but never absent. Had been treated unsuccessfully with liniments, elastic bandage, etc. Small effusion in knee-joint, determined by fluctuation and exploration. Aspirated one and one-half ounces of clear amber-colored fluid. Put up with compress and starch cast.

May 18th: No return of pain, swelling or effusion. Applied compress and plaster cast, and allowed patient to go about on crutches.

June 2d: Removed plaster cast; no effusion. Applied light starch cast for purpose of maintaining some compression; and

further to restrain and limit the motion on the one hand, and on the other, to permit, as the cast became weakened by use, a gradually increasing motion of joint. Patient allowed to walk about with cane.

June 14th: No return of effusion, tenderness or pain. Stiffness of knee very slight. Patient discharged with direction to wear an elastic knee-cap while at work, and to shower knee with hot water at night whenever he felt any soreness. He has not had any trouble with the knee since.

CASE 15. M. B., age 45. Carpenter, admitted to Oakland Hospital September 2d, 1887. Synovitis and erosion of cartilages of right knee-joint from injuries received 22 days previously. Had been under the ordinary treatment of rest, compress, liniments, ointments, etc. But the swelling and effusion remained, together with the pain and tenderness consequent thereon. Pulse 85, Temp. 100 degrees; aspirated about one ounce of what appeared to be rather thin synovial fluid, using the canula while introduced in the joint as a probe; and found that the articular cartilage of the femur was roughened, and from this condition it was thought that the diseased joint was beyond repair. But the routine treatment was pursued, namely: Compress, starch cast, drying splint, elevation and rest.

September 4th: Patient comfortable, and free from pain. Pulse 78, Temp. 98½ degrees.

September 8th: No pain or effusion. Pulse 76, Temp. 98½ degrees. Re-dressed as before, and two days after, when starch cast had dried, patient was allowed to go about on crutches.

September 22d: No pain or local tenderness, and no evidence of effusion: but there was yet some thickening of outer tissues of knee. Re-dressed as before, and after drying of starch cast, patient allowed to go about with a cane.

October 4th: The cure seemed to be perfect; no dressing applied. The stiffness was very slight. After this date, patient walked about freely every day; and the occasional soreness, which resulted from stretching the muscles and ligaments by walking, was always dissipated by the use of hot water showering and a night's rest.

October 14th: Knee seemed perfectly restored, and patient said he felt able to do light work and was discharged—recovered.

NOTE. A month or so after patient's discharge, I heard that he had visited other surgeons for examination, with a

view of obtaining damages on account of original injury; and also alleging "that the usefulness of the knee could not be fully restored on account of dryness, resulting from the operation of drawing out all the joint water."

This statement confirms my opinion that the operation was entirely successful, and that the patient was undoubtedly mallingering. I have recently heard that he is at work, and does not now complain.

CASE 16. J. H. Laborer, age 40.

Admitted to Oakland Hospital October 21st, 1887.

Great swelling of left knee complicated with Erythymatous Lupus of left leg, which also involved a portion of the integument of the knee. Patient suffered considerable pain. There was no history of special injury, but a gradual development of the disease of the skin during the previous two or three months; and there were old scars on leg and about knee, showing the pre-existence and disappearance of similar disease. The strumous origin of the disease was evident. The history of syphilis in the individual was not quiet clear, though probable, and referred to infection 15 years previously. Under various expedients of local treatment, and under tonics and iodide of potassium, the ser-pigenous ulcers healed, but the knee remained swollen and painful, and fluctuation within the joint became evident.

November 26th. Aspirated four ounces of pus from knee-joint, introducing trochar, outside, behind upper border of patella. Compressed knee slightly, and placed limb at rest on posterior splint and elevated on pillows. Afterward re-dressed frequently. Patient had not much pain after operation. After a few days, there was a partial return of fluid in joint, but not enough to cause a return of pain; the quantity remained stationary for a long period; but patient's general health improved and he acquired better use of his knee, being able to bend and move it a little in bed without pain. At times, small ulcers, of a lupoid character would appear; and after a few days more vigorous treatment, disappeared. One of these ulcers however, located just below the patella, was obstinate in healing; and on December 9th, a little whitish pus was observed in the locality. Upon clearing away the unhealthy granulations and probing, to my surprise, the instrument, passed without resistance upward under the the patella, and into the knee-joint; and upon

squeezing the knee, a half ounce or more of pus escaped. Patient's condition at this time was perfectly good and improving, and he did not suffer any pain whatever. His temperature occasionally rose a degree but was usually normal; and he was able to bend the knee a little, and to move his leg about in bed with much freedom. The daily dressing at this time consisted of thorough external cleansing with a carbolized solution, the dusting on of iodoform, and the application of a cold elm poultice. The joint was not molested, never washed out.

December 20th. Patient continued to improve. Sinus leading to knee seemed closed, and the ulcer at site of sinus showed signs of repair. The daily dressing now consisted of thorough external cleansing, dusting on iodoform, a thin mest of carbolized oakum, a layer of absorbent cotton, and over this a layer of cotton batting, bandaged to limb with flannel roller; after which patient was allowed to get out and walk about on crutches for the remainder of the day.

December 30th. The ulcers were all healed. There was no sign of fluid in joint, but little swelling, and no pain on movement of knee. Patient still on crutches as a matter of safety. From this time on, the knee and leg were showered well with hot water each day, and rubbed with zinc ointment.

January 10th, 1888. Crutches laid aside, as patient was able to walk without pain. There was but little stiffness, and this was steadily yielding to the relaxing influences of hot water showering.

February 9th. Patient told me he had a tapeworm and showed me a segment which had passed. Ordered fasting for twenty-four hours and gave him a good dose of male fern, chloroform and castor oil, in combination; and on the following day obtained the worm—fourteen feet with head. After this, patient's general health and appearance improved more rapidly.

February 19th. There being no return of swelling or pain, or trouble of any kind at the knee, but on the contrary a steady improvement in motion; patient was discharged and went to work. He is still working and well.

CASE 17. T. G., aged 45; sailor.

December 2d, 1887. Sinovitis of left knee-joint, from strain three months previously. Chronic enlargement of knee. Tenderness on pressure. Constant dull aching pain, and severe pain on movement, and occasional severe pain when at rest. Disabled and walking on crutches. No fever or redness of

knee; but distinct fluctuation, and patella lifted by effusion in joint. Aspirated three ounces of clear amber-colored fluid, and applied compress and starch cast. Pain entirely relieved.

December 18th. Very slight return of effusion. Re-dressed as before, and allowed patient to go about on crutches—after starch had dried.

December 28th. Some return of pain at knee resulting from return of fluid in joint. Re-aspirated about one ounce of clear fluid, and applied compress to knee, and plaster cast to entire extremity.

January 10th, 1888. Removed anterior half of cast; very slight return of effusion, but no pain after last operation; applied compress and re-applied same cast.

January 20th. Recovery apparently complete, and patient discharged, with directions to wear an elastic knee-cap. He walked about with cane for a few weeks and had no return of trouble at knee, and resumed his occupation.

CASE 18. W. E. B., age 23; painter.—Admitted to Oakland Hospital February 23d, 1888. Synovitis of left knee-joint, from contusion and strain one week previously. Knee swollen and feverish, and very tender on pressure. Could not bear the slightest pressure on foot. Steady dull aching, and occasional sharp pain at knee. Temp. 100°. Aspirated two ounces of thick bloody fluid, and applied compress, starch cast, and long drying splint. No pain after operation.

February 26th. Had no return of pain. Temp. 98⅘.

March 3d. Swelling subsided. No pain or tenderness on pressure; and no return of effusion in joint. Re-dressed as before.

March 8th. Continued improvement. No return of effusion. Applied compress to knee and plaster cast to extremity.

March 27th. Cast removed. Knee apparently well and no dressing applied. Patient directed to lie down and elevate leg occasionally during day; and when walking to use crutches. But he walked around the same day without crutch or cane, and did not suffer any pain or inconvenience. On the following [illegible] against my advice, he went to work, and I am informed [illegible] has since been well.

REMARKS.

[illegible]er, Crowley and Johnson, of Oakland, have [illegible]e treatment of many of the foregoing cases;

and in each case some physician has been present at the time of operation.

Doctor Crowley has of late been performing the operation of aspiration in cases of synovitis of the knee-joint, and he informs me that he too has been successful in every instance; and that the operation invariably gave immediate relief from pain, which coincides with my experience. I assisted him in one case—a case somewhat different from any I have cited—a boy with a strumous knee-joint, and suffering from pyemia. He was greatly emaciated, suffering intensely, and had a very high temperature. A large quantity of pus was aspirated from the knee-joint. The operation gave instant relief from pain; and under appropriate after-treatment the patient fully recovered, with a useful degree of motion at the knee.

During the period covered by the cases here reported, I have had a very much larger number of cases of *slight* recent synovitis of knee-joint, in which the effusion was re-absorbed under treatment of simple compression, rest and elevation; and a *few cases* where the effusion was quite large in quantity, and yet became re-absorbed under the above simple treatment. But in no instance where the pressure of fluid was great enough to cause severe pain, was this treatment successful. During the several years of my practice, I have had a few cases of synovitis of the knee-joint, and have met with many more in the practice of others, wherein the so-called conservative treatment, embracing almost every known method except aspiration, has, through delay, lead to chronic synovitis, arthritis, and more or less permanent stiffness, injury, or absolute destruction of the joint. In three cases of this class, one child and two adults, I have performed amputation of the thigh, on account of such destruction of the knee, which destruction I now fully believe, could have been prevented by timely aspiration.

OPERATION.

The aspirator should be rendered thoroughly aseptic, or rather in itself antiseptic, by cleansing externally with a two per cent. solution of carbolic acid, and by the adjustment of its parts and the testing of the instrument with the canula submerged in said solution. In this way, the aspirator besides being perfectly cleansed and antiseptic, is certain to be put in working order.

The patient should lie on his back in bed with a clean sheet spread under the injured extremity, so as to cover the bed

clothing. The limb should then be cleansed with the carbolized water, and as well the hands of the surgeon and assistants.

An anæsthetic, or a hypodermic injection of morphia, may now be administered, but there is no necessity for either, as the pain of puncture is very brief and slight.

The vacuum is now produced. The knee is grasped by the left hand so as to press and hold the fluid at the point of intended puncture, thus deepening the cavity of the joint at that point for the free entrance of the trochar.

The preferred cite of puncture, I am led to believe, is above the patella under the quadriceps extensor, outside. The fluid can be forced by the hand so as to raise the patella and here deepen the cavity very greatly ; besides, there are no bursae or vessels here. But I have operated at different points, outside and inside, and always safely.

The trochar is thrust boldly into the joint. All necessary adjustment of the instrument to be made with extraordinary care, lest air should enter the joint. The vacuum is now opened, and the fluid drawn out. If the fluid is thick, it may be necessary, and it is always good practice, to strengthen the vacuum, and moreover, to finally press or squeeze the joint, so as to perfectly empty it.

Take a pledget of absorbent cotton soaked in carbolized water and press it to the skin, so as to cover the puncture as the canula is withdrawn. Replace this cotton by a fresh, smooth layer of absorbent cotton, wrung out of the solution and cover the entire front of the joint with a layer of dry absorbent cotton. Over this place a larger—a very thick, layer of cotton batting of the best quality. This layer of cotton should be large enough to compress the joint at all points, anteriorly and laterally. This is to be held in place by an assistant, while the limb is bandaged firmly from the toes to the upper third of the thigh with elastic flannel rollers, making numerous turns at the knee, spirally and in different directions, so as to thoroughly compress the joint from all points.

Over this dressing apply a number of starch bandages* to entire extremity. Place the limb upon a posterior splint, or apply a long outside splint from foot to axilla, and bind the splint to the limb to hold the latter extended in an easy position. I prefer the outside splint, as it can be bandaged to trunk

and thus prevent patient from raising up in bed. (The undershirt can be used to bandage splint to side by means of safety pins; the undershirt body bandage fastened with safety pins, is a favorite device.) The limb is now placed on one or two large pillows and left exposed to the air—any covering will prevent starch-cast from drying firmly. In from twenty-four to forty-eight hours, the starch cast will dry, and then the "drying" splint can be removed. The patient may now shift his position and move in bed; but the most comfortable position for a few days, will be on the back with the limb elevated on pillows, as the foot and leg are apt to swell under the firm tight dressing, if allowed to rest on a level with the trunk.

Again, patient should not be allowed to have more than one pillow under his head, as the gravity, and downward force of the circulation, and obstruction to return circulation, by raising the shoulders high, will cause the foot to swell, even when the latter is elevated.

This dressing, ordinarily, should not be disturbed for several days,—not until it begins to get loose from the subsidence of swelling, except in case of considerable swelling or return of pain.

Patient should be kept in bed until the drying of the second dressing. If then there be no effusion, a somewhat smaller compress will answer, and the patient can have more liberty. But the after treatment must depend upon circumstances, and is sufficiently indicated in the foregoing history of cases.

The rationale of this treatment is: 1st. To relieve the joint by aspiration of an accumulation of fluid, which from its excess or quality seems incapable of being reabsorbed, which by its pressure causes pain, and therein serious constitutional disturbance, which, if long retained, is likely to destroy the integrity of the joint.

2nd. To secure by dressing perfect rest of the part, and exert such compression by means of an elastic compress of cotton within an unyielding outer cast, as will prevent a re-accumulation of an excess of fluid, or set a limitation on the quantity, that will be within the power of the absorbents to dispose of; and to further stimulate or force an increase of action in the absorbents. But few surgical writers have paid more than a passing tribute to aspiration in the treatment of synovitis. The best articles I have seen on the subject are by Sayer [Orthopedic

Surgery, page 206], and Richard Barwell [Ashurst's Encyclopedia of Surgery, Vol. II, page 260]. But the great importance of the operation is nowhere presented with the convincing force of example, or with evidence of the writer's strong conviction; and nowhere is the procedure so clearly defined as to encourage its attempt.

*CRINOLINE STARCH BANDAGES.

The starch bandages spoken of, are made of the heaviest and stiffest white crinoline found in the market, a British brand, the "Unicorn" has given the best satisfaction.

Bandages of desired length (6 yds.), and width (2–4 in.), are torn off, and rolled by hand,—rather loosely. The requisite number of rollers are immersed in cold water for a moment, and laid in an empty basin. Each roller is worked a little with the hand to cause the water to penetrate all parts, and this process of handling each roller is repeated for several minutes, or until all the contained starch or "sizing" is saturated.

The original wetting should be just sufficient to thoroughly saturate the starch, and no more. *The aim being to dissolve, and yet retain, all the starch within the bandage.* In handling a number of bandages, however, the loss of starch from one bandage resulting from the squeezing out of an excess of water, is usually compensated for, as this excess is likely to be caught up and retained in the others.

The bandages may now be used, and applied like other roller bandages, or at any time within a half hour or so; but just before using, they should be again moderately squeezed.

Two or three such bandages will be sufficient for a forearm, three or four for arm and forearm, four or five for foot and leg, five or six for foot, leg and knee, six or eight for entire lower extremity, and so on. If a very strong cast is required, or if the bandages have lost considerable starch in preparation, then one or two extra bandages will be required.

A part covered by these bandages should be exposed to the air for from one to two days, when the cast will be firm.

One of these bandages applied outside a flannel or other dry bandage, will (when dry) prevent the latter from stretching or slipping, and afford additional support.

After splints of any kind have been applied by means of flannel bandages, two or three of these starch bandages applied outside, will hold the splints more securely than adhesive plaster, and serve as a firm, unyielding support.

In fractures without displacement, or where a joint is to be kept in a certain position, or where any definite position is required to be maintained, the use of interior or direct splints may usually be dispensed with, by applying necessary exterior coaptation or other splints, *outside* the starch dressing. These splints are to be bandaged on with flannel rollers, and left on two or three days as *drying splints*.

Upon the removal of a *drying splint* there may be found slight dampness or imperfection of the cast, where the covering by the splint retards the drying; but the remaining portion of the cast will be so firm as to afford sufficient general support; and exposure to the air for a few hours longer, will remedy the defect. The cast may be cut readily with knife or scissors, and yet is so firm and strong, that it may be removed and replaced repeatedly; and when replaced it may be bandaged with additional starch bandages, and thus may be straightened to any degree. In case of swelling, the cast may be cut and relaxed.

The utility of the Crinoline Starch Bandage is greater than that of any other surgical dressing.

It fulfils an important place in the treatment of almost every fracture, dislocation, sprain, contusion, etc., and is especially useful where compression is required.

It can be used in most cases as a substitute for plaster of Paris.

Casts may be made with it, as thin and elastic, or as thick and firm, as the use demands.

It is clean, in every respect.

It is cheap,—the material costing only 7 or 8 cents per yard.

It is always at hand, and convenient for use.

Besides being used as a starch dressing, crinoline is, by means of its seive-like meshes, and as well by its absorbing quality due to bleaching, the best material for making plaster bandages, and for the same reasons is, when thoroughly soaked so as to wash out *all* the starch, the best water bandage.

The utility of crinoline as a starch dressing was discovered by accident some ten or twelve years ago. I happened to have in my bag some surplus rollers from a stock obtained for making plaster bandages, and soaked one in lead lotion and applied to a contused leg, directing the bandage to be kept wet with the lotion. On the following day, I found that the lotion had not been used, and that the bandage was not only dry, but very firm from the starch which [illegible] tained. From this hint

I came to appreciate the surgical value of crinoline bandages, and have used them extensively since, and always carry them. The drugstores here keep them in stock, and several physicians here use them. A few physicians, however, tried them and failing to get them to dry firmly, abandoned them. Their failure was obviously due to washing out too much of the starch, to the selection of material that contained but little starch, or to the prevention of prompt drying by the air, by allowing the part to be covered. Had they reflected for a moment upon the conditions necessary for the stiffening of their immaculate shirt-bosoms, they could not have failed.

REPORT OF SPECIAL COMMITTEE

ON

ORGANIZATION OF COUNTY AND DISTRICT SOCIETIES.

By WM. M. LAWLOR, M. D., Chairman, San Francisco.

Mr. President and members of the Medical Society of the State of California. Your committee beg leave to submit the following:

We addressed a circular letter to one or more physicians in every county, asking for information as to the existence, formation or reorganization of any county or district society in their immediate vicinity.

We append their replies as the body of this report.

Alameda County has a society known as the "Alameda County Medical Association," organized October 25th, 1869; incorporated January, 1871; with an active membership of thirty-seven at this date.

Also a society known as the "Society of Physicians and Surgeons of Alameda County," organized in 1881.

There is also a society in Oakland known as the "Oakland Library and Pathological Society," organized in 1880.

Amador County. There was an effort made several years ago to form a society. Two or three meetings were held by the physicians, but nothing permanent followed and the County is without a society.

President, W. N. Smart, M. D.; Vice-President, C. C. Vale, M. D.; Treasurer, D. B. Worthrop, M. D.; Secretary, R. Armstrong, M. D.

There was also a society organized in January, 1888, under the same name with the following officers:—President, C. M. Fenn, M. D.; Vice-President, E. Nugent, M. D.; Secretary, T. J. McDonald, M. D.; Treasurer, B. W. Day, M. D.

We have been informed that Dr. Fenn and others have withdrawn from the above, and joined the society under the presidency of Dr. W. N. Smart, which practically leaves the county with but one society.

San Francisco. Has three societies:

"San Francisco County Medical Society," organized in February, 1868.

"San Francisco Medical Benevolent Society," organized December 21st, 1870.

"San Francisco Society of German Physicians."

San Joaquin County. Has the "San Joaquin County Medical Society," with Dr. Thomas Phillips as president. Its meetings are not held regularly, but at the call of the President.

San Mateo County. Has never had a society.

Santa Barbara County. Is without a society.

Santa Clara County. Has a society under the name of the "Santa Clara County Medical Society," with the following officers:—President, Jacob W. Brown, M. D.; 1st Vice-President, W. D. McDougal, M. D.; 2d Vice-President, A. L. Provost, M. D.; Secretary, Frank K. Saxe; Treasurer, P. M. Lasson.

Santa Cruz County and Monterey County. Have formed a district society, and the present one is a reorganization of the Santa Cruz County Society.

Siskiyou County. No society.

Solano County. Had a society formed about sixteen years ago, with Dr. L. C. Frisbee as president. My informant writes, "It was still-born;" it has never been reorganized.

Sonoma County. At a meeting of physicians held March 5th, 1887, a society was formed and the following officers were elected: President, B. S. Young, M. D., of Santa Rosa; Vice-President, J. R. Swisher, M. D., of Healdsburg; Secretary, C. A. Davis, M. D., of Santa Rosa; Board of Censors, Drs. W. B. Coffman, J. F. Boyce and C. W. Evans.

Stanislaus County. Has the formation of a society under way at present with promising prospects of success.

[illegible]

[illegible]

[illegible]

[illegible]

forbid adequate allusion to the great progress being made in regard to the etiology, pathology and treatment of the diseases peculiar to women.

I respectfully invite your attention to the pathological conditions which produce *Eclampsia*—convulsions—which are but fearful symptoms of some of the diseases which I propose to consider—with special attention to their *treatment*. Eclampsia is a symptom of various pathological conditions of both sexes. I only propose to notice the convulsions of pregnant and of parturient women, and those of infants.

Every convulsion may produce *fatal effects* in adults, and sometimes in infants. The period of suspended respiration in the early stage of a convulsion, if sufficiently protracted, is liable to arrest the circulation of the blood; when its fibrin begins at once to adhere to the columneae carneae and the fibrous attachments of the cardiac valves. If the quantity deposited is sufficient, when the blood begins to flow again through the heart, the small clots thus formed are disengaged from their attachments; and are carried to the brain through the arteries and may occlude some of their branches—thus cutting off the supply of freshly oxidized blood to portions of the brain—producing local paralysis and local softening of the brain. If the clots are not carried through the systemic circulation, including the brain, they are liable to accumulate in the heart and to produce thrombosis—resulting in fatal embolia—extending into the pulmonary artery and into the aorta. By far the *most dangerous* result of violent convulsion, however, is from extreme nervous tension and cerebral hyperemia; when the minute arteries, capillaries and veins are liable to rupture, resulting in cerebral hemorrhage. If this hemorrhage is sufficiently great, the patient has *fatal apoplexy*—with apoplectic convulsions. If the hemorrhage is less, the patient has paralysis from compression of the brain—of greater or less extent—in proportion to the quantity of extravasated blood, liable to result in softening of the brain. Accurate scientific observations have shown that in *Puerperal Eclampsia*, *albuminuria* is almost uniformly a pre-existing condition—the etiology of which is somewhat obscure. It has been attributed to uterine pressure on the renal veins, congestion of the brain, and to other causes.

I will only allude to the etiology and the pathology of the diseased conditions herein considered, when necessary to eluci- their treatment; for the standard works are replete with

what is necessary in regard to their etiology, pathology, diagnosis, and prognosis. The objective point of this paper, so far as *Eclampsia* is concerned, is its *treatment*. If every pregnant woman would put herself under the care of a *competent physician*, and obey his instructions during gestation and until after delivery, *puerperal Eclampsia* could be averted in every case. For its premonitory symptoms portend, sufficiently, the grave conditions to follow. The constipation, headache, dizziness, albuminuria and anasarca, are sufficient during the later stages of gestation to justify the *enforcement*, if necessary, of adequate prophylaxis. For, if Eclampsia occur at confinement, a fearful and dangerous calamity has befallen the patient, which might have been avoided by appropriate hygienic and medical treatment. Although prophylactic treatment herein contemplated is well described in books, I will suggest that saline, or other active laxatives, diuretics with anodynes, if indicated, tincture iron, etc., and if there is fever, with periodical exacerbations, or, if the patient resides in a malarial locality, Quin. Sulph., grs., jv. Morph., Sulph., grs., 1-16 to 1-12 or more may be given four to six times in twenty-four hours. Any active treatment should be accompanied by anodynes, and if premature labor is threatened, or already exists, opiates adequate to the emergency. Gentle exercise in the open air and sunshine may be indulged, if agreeable and no pain or other inconvenience follows. But if fatigue, labor or other pains ensue, rest is indispensable in addition. I did not see any of the cases of convulsions which I have treated until the labor had commenced, and some of them were in convulsions when I arrived.

Most of my cases have been in women of average repletion, although they occur in some of spare habit and in others decidedly plethoric. The treatment herein recommended may be used in all the above conditions, and with ordinary discretion is free from danger. Its success, so far as I know, has been uniformly all that could be desired. I will illustrate the *treatment* by a hypothetical case, with the salient points, premising that we have not seen or treated the woman during gestation. When called, the woman is in labor and has violent convulsions, or the premonitions thereof are such, that she is soon attacked with puerperal eclampsia with all its horrors. The stomach contains sour ingesta, the bowels are costive, the urine is retained and highly albuminous. The pains are severe, the face flushed, the conjunctivæ [illegible] convulsions frequent, once in

five, ten or fifteen minutes. The pulse tense and generally full with stertorous breathing, and she is *wholly unconscious.* The obvious indications are, to relieve the convulsions, deliver the child as speedily as it can be done with safety, prevent other convulsions, and to treat the general system for the relief of the pathological conditions.

The convulsions can be speedily arrested by chloroform or by ether, by inhalation, but the effects are evanescent. Their use must be continued to a degree of absolute anesthesia or the convulsions return. Chloral Hydrate per rectal enema, in doses of from dr. ½ to dr. 1 generally produces quiet sleep and prevents further convulsions, while its full effects last; but like chloroform or ether, its profound action must be maintained or the convulsions return. For obvious reasons it is desirable to avoid the continued use of either of the above medicines to prevent a return of the convulsions as fatal effects might follow. But all are fortunate, however, in having a remedy *wholly free from danger*, the dose of which is small, easy of administration, by the mouth, hypodermically, or perhaps best of all per rectal enema; which will arrest convulsions about as speedily as either of the above medicines, or, as by the time honored *venesection*. I scarcely need say that I allude to *veratrum viride*. First of all, give tinct. veratrum viride m. x. with pure magnesia or sodae bi-carb. and pulv. ipecac, aa dr. ii. Then use large enemata of warm camphor water once in 30 minutes, until the bowels are freely moved. Then empty the bladder with a catheter, while waiting for the injection to act, if there is time. Give the tinct. of veratrum in doses of m. v. to vij, and ipecac ½ dr. every 30 to 40 minutes, until the stomach is freely emptied and the pulse is reduced to 60, or if convulsions continue, or are threatened, to 40 beats per minute. As soon as the rectum and the bladder are also emptied, give pure ether or chloroform by inhalation, until profound anæsthesia is produced, which can be done with safety, if done with due caution. Then proceed at once to *deliver* with forceps—as less apt to provoke convulsions than delivery by turning.

The os uteri is usually soft, patulous and dilatable. But if not so, proceed to dilate slowly and gently with the fingers or artificial dilators, until the forceps can be safely applied. Then the child can be slowly and gently delivered. The anæsthesia should be continued until the after-birth is delivered. With the tinct. of veratrum, in doses of six to ten drops, once in

three to six hours, the pulse can be safely kept down to 60 or even 40 beats in a minute, if necessary to effectually prevent other convulsions. It can be relied upon for that purpose. If from extreme anxiety, unusual susceptibility, or by mistake, excessive quantites of veratrum are given, the nausea and the severe and almost constant vomiting it produces, is *not* dangerous, because it can be readily and effectually checked and controlled, by *stimulants given immediately after each vomiting*; though it be after every second or third breath or after *every breath*. I prefer alcholic stimulants—as whisky or brandy—as they are usually accessible. Paregoric is also very effectual in relieving the nausea and vomiting. The vomiting once checked omit the stimulants, unless needed again. For, exciting causes may bring on the convulsions, again requiring liberal doses of the veratrum.

My practice is not to let the pulse exceed 70 beats per minute, for a week, or even longer, if there is a tendency to a return of fever, or cerebral, nervous or sanguineous tension, which precede the convulsions. Immediately after the convulsions are satisfactorily arrested, let the patient take quiniæ sulph. grs. iv. four times a day with some anodyne, if indicated; and tinct. fern chlorid., m. xv. in a glass of water, three times a day after meals. With this treatment for a week or longer at discretion, the patient may be expected to make a good recovery.

When I first conceived the idea of treating Puerperal Eclampsia with veratrum viride, it was from a purely scientific and logical standpoint. I had never known or seen, heard or read of it ever having been used in such cases. My first cases were reported to the Medical Society of the State of California, and published in its Transactions in the year 1877. But the cases reported were treated Aug. 26th, 1872, and Jan. 9th, 1876. I read a paper on the *Treatment of Puerperal Eclampsia*, before the Section on Obstetrics, of whose council I had the honor of being a member, at the *Ninth Session of the International Medical Congress*, held in Washington, D.C., in Sept. 1887. In that paper I urged the treatment of Puerperal Eclampsia with veratrum viride, as superior to *venesection, or any other known treatment*—based exclusively on my own observations in actual practice. (Vide Proceedings of Sept. 9th, 1887, of *Section on Obstetrics*, in the *Transactions* of the *Ninth International Medical Congress*, now being published). Since my return from that Congress, I have had one severe case of *Puerperal Eclampsia*

in a primipara. I first used chloroform for immediate relief to the convulsions with success. Doctor W. R. Cluness, of Sacramento, was my able counsel, at whose suggestion, and before the patient was fully under the protective power of the veratrum, we administered per rectal enema Chloral Hydras dr. ½ which produced a quiet, restful sleep, which evidently aided materially, in preventing the convulsions, until the controlling and preventive power of the veratrum was fully secured. *Then* she was out of danger. She never had another convulsion. She was kept under the absolutely controlling influence of the veratrum for two or three days—and was treated with Quin. Sulph. and Tinct. Fer. Chlorid, for ten or twelve days, and she made a good recovery. Although the convulsions began and were severe, before the child was born — which was delivered with forceps,—the mother under the complete anæsthetic influence of chloroform; yet the child was vigorous and did well.

My early convictions are strengthened in every additional case, and are now *confirmed, that veratrum veride, judiciously used, is by far the most important agent for the speedy relief and the successful treatment of Puerperal Eclampsia.*

I have writen to H. M. Sherman, M. D., of San Francisco, who is *chairman* of the department of "*Diseases of Children*" in this committee, that I would treat of one of the forms of their diseases; — I allude to the *treatment of Infantile Eclampsia.* Time, and the acceptable limits of this report, forbid appropriate allusion to this condition of infants or children, caused by the congestive stage of the exanthemata, traumatism, or other local disease—especially of the brain and spinal cord and their meninges. I invite your attention to their convulsions *during severe fever*—with rapid, strong pulse, great heat of skin, high temperature—with extreme cerebral nervous and sanguineous tension. There is usually acid ingesta in the stomach and undigested, or indigestable food in the bowels. These cases are extremely liable to occur in *malarial*, or so called *mountain fevers*, or in *typhoid*, or *typho-malarial fever*, and may occur in severe fevers from local inflammatory origin. There is great thirst and extreme restlessness,—with apparently severe pain in the head, back and limbs. We are usually called in haste on the approach, or near the acme, of the exacerbation of the fever, and find the child in the above described condition. To neutralize the acidity of the ingesta and to secure its speedy expulsion from the stomach, give a large emetic dose of some

form of ipecac, combined with pure magnesia, scr. 1 or 5 to 10 grs. of sodae bi-carb. followed by copious draughts of warm water. Repeat this, if necessary to secure free vomiting of the entire contents of the stomach, once in 25 or 30 minutes, until the stomach is empty,—continuing to give warm water freely after every vomiting, or effort to vomit. During the intervals between the vomiting, give large injections into the rectum, of warm water, repeated once in 30 minutes, until the bowels are freely moved. As soon as the stomach is probably empty, or before, if the symptoms are urgent, give tinct. veratrum viridæ in doses, proportionate to the age of the child, once in an hour, or two or oftener—according to the urgency of the symptoms—until the brain, nervous and blood tension is sufficiently relaxed to arrest the convulsions. Then continue the veratrum at intervals and in quantities sufficient to control the convulsions by maintaining adequate relaxation.

In the depressed state of the pulse and fever thus produced, if the fever is malarial in its origin, or the patient in a malarial or high mountain locality; begin as soon as the stomach will retain it, the use, once in three hours, of quiniæ sulph. grs. 1 to 3, and a few drops of spts. æth. comp. and ext. hyoscyami fluid, and continue sufficient of the veratrum and ipecac, if necessary, to keep the pulse and fever under absolute control,—the doses according to the age of the child.

The quinine treatment should be continued with the veratrum, etc., between,—*i. e.*, alternate them, if necessary, to keep the pulse and fever down,—day and night, for one or two days, as may be necessary to prevent another exacerbation of fever. For, on success in preventing another fever, will depend your speedy and satisfactory cure of the case. During the convulsions and the accompanying fever, the head should be kept high and cool. The drinks should be demulcent. The first diet, and for a few days subsequently, should be from the breast, if not weaned, or of new, sweet milk and lime water, in the proportion of 7 or 8 of milk to 1 of lime water.

Should the vomiting continue, a weak sinapism over the stomach, with a few teaspoonfuls of chicken tea, generally gives relief. Continue the quinine and anodyne for four or five days. The fever once abated, and its return every day, or second day prevented, there is no further danger of convulsions from that attack. Many cases thoroughly cured, as above described, will not return. But if the patient remain in the same

locality where it was contracted,—exposed to the same influences, the disease is apt to return in seven days from the day of the last fever, or about that time, and subsequently at periods of seven or some multiple of seven days. To avoid such returns of the fever, begin the preventive treatment at least three days before the regular day of its expected periodical return. The preventive treatment should consist of from 1½ to 4 grs. of quinine, four times a day; for children from one to twelve years of age—the dose for intermediate ages in proportion. It should be given for four days in a week—and omitting three days—continued at that rate for three weeks. Then give the medicine for three days in each week, omitting *four* days, and continue at that rate for four weeks longer, and there will rarely be any other return of the fever. If the child cannot take the quinia sulph. in gelatine or sugar-coated pills of appropriate size, it can be mixed with ⅛ its entire weight of acid tannicum, and given in a menstrum of equal parts of syrups of ext. glyc. and of anise, which conceal the bitterness of the medicine better than any other combination, to my knowledge. With a suitable diet, close attention to the bowels, exercise and exposure, the above treatment may be depended upon to produce a permanent cure of the fever on which the convulsions depend. The above treatment will not arrest, or prevent, a typhoid fever, but it will greatly modify a typho-malarial fever; while it will rarely, if ever, fail to cure a malarial, or mountain fever. Although, under precisely the same circumstances, the next and subsequent years, the child may have the fever re-produced in accordance with immutable laws of nature; yet, by close observation, and the prompt and thorough use of the above, or similar treatment, the fever may be speedily arrested, before the convulsions are also re-produced; and perseverance in the preventive course will protect the child against the *dread eclampsia*,—a condition than which, few others, if any, can be more alarmingly horrible.

Although *puerperal eclampsia* represents pathological conditions of pregnant and of parturient women, which might be legitimately considered by the committee on obstetrics; yet, I treat of the subject in this report on "*diseases of women*," for the following reasons, viz.:

First.—That eclampsia is preceded and accompanied by pathological conditions which are *diseases of women.*

Second.—The *fearful mortality* which has been and still may be produced thereby.

Third.—That the treatment herein recommended should be brought before, and thoroughly diffused among the entire profession; because, so far as known to me, it has been *uniformly successful* in all the cases in which it has been properly used.

Fourth.—That it is speedy and safe in its effects, and therefore, *the most appropriate treatment* for *peurperal eclampsia*, known to science.

Before closing, I wish to state, that *hydrochlorate of cocaine* can be used with success and great comfort to the patient in cases of *vaginismus*, vaginitis, and in cases of excessively tender and irritable os and cervix-uteri, usually accompanied by abrasion or ulceration. It is specially useful when applied locally thirty to sixty minutes before treating the vagina, or the uterus for those affections.

It may also be combined with the compound lotions of morphine, or ext. opii fluid, and ext. ergotae fluid, in a menstrum of glycerine with which prepared cotton may be saturated and applied as desired. For vaginismus, etc., it may also be used in form of an ointment applied on absorbent cotton; or in form of suppositories, made with cocoa butter.

Circumstances have prevented a review of many of the important improvements recently made in the treatment of diseases of females, in this report.

REPORT OF THE COMMITTEE ON DISEASES OF CHILDREN

By HARRY M. SHERMAN, San Francisco, Chairman.

Mr. President and Members of the Medical Society of the State of California:

A review of the work of the past year in the study and treatment of disease, as it occurs in children, shows that here, as elsewhere, *most* has been done on the lines laid down by the investigation of micro-organisms in biological laboratories; this could hardly be otherwise. Pathology can go but little if any further until improvements in the microscope open new fields to view. For the present, the question, "What lesson?" is answered; and in an attempt to solve, the co

question, "Why is the lesson?" pathogeny is engrossing the attention of microscopist, biologist and chemist. The late Austin Flint said, in an essay intended to be read before the British Medical Association, in 1886, "The supreme objects of study at the present time are the discovery of micro-organisms and their natural history. But these agents, it is probable, are pathogenetic, not directly, but indirectly, by means of the toxical products of their activity. What are these products, and how do they give rise to the phenomena of disease?"

Disregarding now those diseases whose courses in children differ but little from what they are when adults are affected, diseases now acknowledgedly due to infection by specific micro-organisms; I ask your attention to the consideration of a class of diseases most fatal to children, the acute diarrhœas, in which it seems possible that the question of Austin Flint has received a partial answer. The consideration will be in respect to their etiology and treatment only, the clinical picture of their symptoms having been often and accurately drawn.

There has very recently been read before the New York Academy of Medicine a paper by A. Siebert, M. D., (Medical Record, March 24th, 1888) which takes up and investigates the old and accepted causes of acute diarrhœa in children, heat and atmospheric moisture. Studying the relation between these supposed causes and the occurrence of diarrhœa in 8036 cases, treated at the German Dispensary during a period of ten years; the result has been to overthrow some of the apparently best founded theories. It was shown that heat alone is not the only factor, for the most cases did not necessarily occur in the hottest weather, as measured by the mean temperatures. For instance: "In July, 1881, the mean temperature was 80° F., that of August 82°, and that of September 81°; yet we have 290 cases in July, 223 cases in August, and 137 cases in September. And in July, 1884, we notice 75°.6 F. as the mean, and in August and September, each, 76°.7 F.; yet July has 266, August has 156, and September has 164 cases; while the mortality of both July months was nearly double that of the August, and three times as large as in the two September months" (p. 381).

The result is also negative [illegible] moisture is brought into the compari[illegible] mor-bidity, for "a hot and [illegible] hot and medium moist a[illegible]

very large numbers of cases (299 and 303, in our collection the two largest); while still hotter atmosphere, impregnated by large quantities of moisture (as in July, 1885 and 1887, the hottest and muggiest of our collection), shows but a medium number of cases (232 and 196, respectively)."

Dr. Siebert "carefully selected all moist-warm and all dry-warm days of the ten summers, and compared their position with" his "morbidity lines, and" he has "failed to find even the slightest trace of influence." The same careful study of other telluric conditions, the direction and velocity of the wind, and the rainfall, in their relation to the morbidity gave always the same result; there was no constant relation between them. Coming back to the temperature and selecting the hottest days, those with a temperature above 85° F. and comparing this with the morbidity, did not show that this extreme of heat is capable of causing diarrhœa. To this point Dr. Siebert's article has been iconoclastic; but here it changes, and the one positive fact, a most important one, is presented. The greatest morbidity and the greatest mortality have a direct relation to the minimum daily temperature. "As soon as the minimum daily temperature reaches about 60° F. and above, and stays so for a few days, we notice more than the usual number of cases of gastro-intestinal catarrh. If the minimum temperature remains above 60° F. for a longer period, say one week or more, then we notice cholera-infantum becoming epidemic—no matter if the maximum temperatures goes into the nineties or remains below 85° or even below 80°."

Remembering this fact, a fact learned by the study of a sufficient number of cases to make it trustworthy, let us consider other views of the same subject taken from a different standpoint. S. A. Potter, M. D., of Roxbury, read a paper before the Massachusett's Medical Society, in June, 1887, from which I abstract the following:

Panum, in 1856, a time when all the brightest scientists of the day were working to discover the cause of fermentation, a question definitely settled by Pasteur, in 1857, showed "that putrefying substances often contain poisons, which, when injected into animals, caused death," (S. A. Potter, M. D., Medical Record, July 9th, 1887, p. 45.) Aruer, in 1820, had suggested it (*ibid.*), and Selmi had given to the alkaloids thus formed the name of ptomaines (*ibid.*) and Brieger, in 1885, isolated from various putrefying substances fourteen distinct bodie

alkaloid and alkloidal. These vary markedly in their effects, from absolute or comparative harmlessness to active and virulent poisonous powers.

"There are five which bear an important relation to the study of diarrhœa; neurin, muscarin, cholin, mydelain, and a substance whose composition was not determined. The action of the first three is essentially identical, the most important symptons produced by a fatal dose being salivation, vomiting and diarrhœa, dyspnœa, paralysis, and death."

Mydelain in guinea pigs and cats, caused profuse secretion from almost all the mucous membranes, "dilated pupils, exophthalmos, an increased temperature, paralysis, fibrillary, twitchings of muscles, dyspnœa and death. The substance of undetermined composition, when injected into rabbits and guinea pigs, caused excessive peristalsis and exhausting diarrhœa. In general it may be said that most of the alkaloids which have been obtained by the decomposition of albumen, have a tendency to produce diarrhœa." (*ibid.*)

That micro-organisms on whose existence ptomaine formation depends, exist in the intestinal canal is a well established fact; and they have also been found in the vomitus and faeces. Johnson found them in the vomitus of seventeen breast-fed infants, and he also found them in diarrhœal faeces. (*ibid.*)*

Other observations take us still closer to the solution of the problem. N. Tomkins, M. D., of Leicester, England, read before the Manchester Medical Society, a paper on "Some Bacteriological Observations in Connection with Summer Diarrhœa," (the *Lancet*, London, August 20, 1887,) detailing the result of his studies of cultivations from different tissues of those dead of the disease, and also cultivations with the micro-organisms found in the air in different parts of the city of Leicester. Five post-mortems were made within six hours after death. Naked-eye changes in the various organs were comparatively slight, or absent, except in the intestines. These were inflamed, usually throughout their entire length; the

---

*W. D. Booker, of Johns Hopkin's University, has isolated twelve different varieties of bacteria—from the dejecta of diarrhœa affected children. Eleven were bacilli and one belonged to the cocci. Of these some had no effect on the caseine of milk, others coagulated it with an alkaline reaction, and still others coagulated it with an acid re-action and gas evolution. Two of the bacilli only liquefied gelatine. (Med. Rec., September 10, 1887.)

greatest intensity being in the ileum. "Small ulcers were in most cases present," but these were not confined to Peyer's patches. "From the blood (taken from the heart), no cultivation results were obtained, with the exception of once doubtfully from the right ventricle. From the spleen, no cultivations were obtained. From the mesenteric glands, three of the cases furnished growths. From the kidneys, abundant growths were obtained. From the ulcerations in the coats of the intestines (as, of course, was to be expected), the growths were abundantly profuse. From the first growth of micro-organisms obtained successive cultivations were made, with a view, if possible, of obtaining a purer growth, as the original ones were very mixed, containing micro-cocci and bacilli of various forms and sizes, but the attempt was not very successful. The material chiefly used in the cultivations was nutrient gelatine, this being found best adapted for that purpose. The temperature at which the cultivations were carried on was about 20° C. (68° F.), and a difference was observable in the rate of growth between the three sources,—that is, between the growths from the intestines, the glands and the kidneys. In those from the intestinal coats, the growth was more rapid, so that within three days the whole of the gelatine had become used up and liquefied, and the liquid swarming with micro-organisms. In those from the kidneys and mesenteric glands the rate of growth was much slower; but the changes that could be seen taking place from the point of inoculation were the same in character, the mass slowly becoming fluid until at the end of a week no difference was to be seen between these and the former. The resulting growths from the intestines, kidneys and mesenteric glands respectively, examined microscopically, showed but little difference. The bacilli, where compared with those of Asiatic Cholera, are shorter and thicker. The reaction of the gelatine in each case becomes markedly alkaline; and one other fact worthy of notice is that in all there is developed a powerful offensive odor, even to the fourth and fifth generation, the latter of wh
cannot contain more than the two-millionth part of
of the original inoculation, and yet with this imm
the odor is as characteristic as in the first growth.

The examination of the floating micro-organis
gave results of startling significance. "Examined
nes as before by means of cultivations in nutrient

air in the streets of those parts of Leicester where the disease most prevails; and where the sewers are in the worst condition, as to cleanliness, etc., the number of organisms per cubic metre varied from 2000 to upwards of 5000 or 6000; the latter being obtained from air from sewer ventilators in the middle of the streets, whilst in the air of the more open and higher districts they varied from 60 or 80 to 800 or 900 per cubic metre. The growth in these was slower than in those cultivations derived from the organs of the body, but with the air from the sewers the gelatine was ultimately liquefied in the same manner; and in these cultivations an odor was perceptible, of the same offensive character, but much slighter in degree to that before mentioned."

Dr. Tomkins did not, unfortunately, make any attempts to isolate any of the products of putrefaction, nor even to discover the true source and character of the volatile substance which caused the odor.

Vaughn has been studying the same subject but on different lines. He first, as is well known, isolated a substance from ice cream which had poisoned those who had eaten of it.

This was named by him tyrotoxicon, is chemically a diazobenzol, and is decomposed at a temperature just below the boiling point. A grain or a grain and a half given to kittens produced violent vomiting, diarrhœa and death in a short time. Smaller quantities administered daily caused diarrhœa, vomiting and rapid emaciation." Gaz. Med. di Roma, Oct. 1st, 1887. Abstracted in Arch. Pediat., April 1888. It has in every instance been found in milk that had from the time of its coming from the cow to the time of its examination been under circumstances favorable to fermentative changes; and when it was given to persons after these changes had occurred, diarrhœa had resulted. This substance is to be added to the list of fermentation products which produce diarrhœa, and it has been found only in a food stuff.

It is due to the action of "the bacillus butyricus or one which closely resembles it. It is often developed in the stomach; and if that viscus, or the intestine, contains undigested food, the phenomena of putrefaction will result." (*ibid.*)

To recapitulate and group in logical order these various facts:

We learn on reliable authority that entero-colitis, which is in almost all places endemic, becomes more prevalent when the minimum daily temperature is at or above 60° F. and remains at that point for two or three days; if it remains so high

for a week the disease has affected so many that it is rightly said to be epidemic. Now it is well known that at about this temperature the growth and increase of the various micro-organisms is most rapid, and their growth is always accompanied by the decomposition of their food. This follows as a matter of course, on the statement of Fraenkel, as quoted by Potter: "Micro-organisms are the producers of fermentation, and what in the economy of nature is a still more important part to play, are the cause, and the only cause, of the putrefaction of organic substances;"—so that when their growth and multiplication is more rapid, the products of their action must be more abundant.

Dr. Siebert in his article, already quoted, states two facts pertinent in this connection. Dr. Cyrus Edson, of the New York Health Office, asserts "that according to his experience and that of others, milk will begin to turn readily at 60° F. and over,"—second, that "chief engineer Birdsall made the statement that as soon as the temperature of the water in Croton Lake reaches 60° F. and above, it has a peculiar taste, due, no doubt, to decomposed material in it, or development of organisms of decomposition."

Both of these changes, the turning of the milk and the change which produced the peculiar taste in drinking water, are due to micro-organisms, in these two instances to organisms comparatively harmless to human beings; but there have been found in the air in places where the circumstances were most favorable for their growth, large numbers of micro-organisms which could be identified by the odor of their products, these organisms administered to man produced in him diarrhœa; further, in the post-mortem examination of those who had died of diarrhœa the same organisms were present, as shown by the odor of their products, both in the bowels, and certain of the tissues. These, or closely related micro-organisms, have been found by many distinct observers living in the vomitus and dejecta of diarrhœal cases. The results of their presence and vital action gives, among other products, the ptomaines, and these have, by experiment, been found to have, in general, the power of producing diarrhœa, the different ptomaines varying individually in this respect from a slight to a most violent exhibition of this power. One of these substances tyrotoxicon, stands alone; because its connection with the dis ·se has been more clearly made out, it having been foun

in a food, and the bacillus which produces it having been shown to be capable of growth and reproduction both outside and within the body.

The method of ingress of micro-organisms and their vital products to the body needs not to be pointed out. Every individual opens the door wide to them many times daily. Granting them a causal relation to the disease in question, how do any of us escape? With their power of increase the few we each daily swallowed should be enough, if left to act their part undisturbed, to cause severe or fatal illness. That this does not result is probably due to the acknowledged antiseptic properties of the gastric juice and of the bile, and with digestion proceeding normally, the micro-organisms are inhibited in their action and may even be themselves digested. If, however, there is any interference with digestive processes, there remains food but little changed from its condition before ingestion; and here can be found ample opportunity for fermentative and putrefactive processes. Again, it is quite possible that the micro-organisms may gain entrance in such numbers that their action can go on and their poisonous products be formed in such quantity as to produce effect before sufficient gastric juice for their destruction has been secreted. If the food is already undergoing putrefaction, when ingested, there may have been developed enough of the ptomaines to cause diarrhœa. This has been most conclusively shown in the case of tyrotoxicon. On these ptomaines, the gastric juice has, apparently, no effect; nor has any other of the secretions. Their ingestion is tantamount to the ingestion of so much poison.

While all these facts evidently point to bacteria and bacterial action as the cause of summer diarrhœa, still the case is not absolutely made out; the chain of evidence is not perfect. We should prove: "1. The presence of a distinct and specific organism in the blood or tissues of those suffering from the disease; 2. The artificial cultivation of these apart from the body; 3. The production of the disease by introducing these into a healthy body, etc.; 4. The presence of the same organism again in the body when such disease is introduced."—(Tomkins, Lancet, August 20, 1887.)

The satisfaction of the first of these propositions is merely a matter of time. At present bacteria are found in such abundance that opportunity has not permitted their separation and classification and the determination of their separate powers.

Their presence as a class is proven beyond the shadow of a doubt, and their cultivation outside of and apart from the body is a common laboratory experiment. The reproduction of the disease by their introduction into a healthy body has also been done. Dr. Tomkins stating "from actual experiment, that a very small dose of these artificially cultivated microbes will produce a smart attack of diarrhœa." The satisfaction of the fourth proposition requires the intentional development of an intentionally fatal disease in a human being, for experiments on the lower animals prove the case only in regard to themselves, and this is likely to be long in the doing. But while absolute scientific proof can only thus be secured, evidence sufficient to convict can easily be accumulated. For all practical purposes we would consider the question settled if, 1. Certain micro-organisms and their invariable products, ptomaines, etc., were found in those dying of summer diarrhœa; 2. The cultivation of these with the production of the same ptomaines apart from the body; 3. Administration of the ptomaines to a healthy person, to produce a train of symptoms similar to the disease but regulated in severity by the dosage; the administration of the cultivated organisms to produce the original disease; 4. The discovery in the dejecta, urine and vomitus of the person thus artificially made ill, of the descendants of the administered micro-organisms and their invariable products; 5. If to such a person artificially made ill a drug, known to have a germicidal power over these particular organisms, was administered, with the effect of checking the disease, the proof would closely approach, if it did not actually reach, absoluteness.

While biologists have been studying the etiology, clinicians have been trying to improve the therapeutics in accordance with new ideas of causation.

Holt, of New York, has tabulated 300 cases of his o
treated by the old methods and opium, bismuth, chalk-mix
and castor oil; of these 50 per cent. were cured, 27 per cent. i
proved, 18 per cent. unimproved, and 7 per cent. died.

Of 81 similar cases treated by an initial dose of c
to remove decomposing matter from the bowe
lowed by the administration of sodium salic
were cured, 7 per cent. improved, 7 per cer
1½ per cent. died. Forty-four cases were tr
usually preceded by the oil; and of these
red, 15 per cent. improved, 13 per cent. u

per cent. died. Resorcin used similarly in 27 cases gave 55 per cent. cured, 22 per cent. improved, 22 per cent. unimproved, and none died.—(Medical Record, January 15th, 1887, p. 77.) Solger has used with success in chronic diarrhœa and intestinal catarrh, rebellious to other treatments, bismuth salicylate. The salt must be a pure one, is given in .80 cgrm doses three times daily, and acts by its antiseptic properties, the bismuth being, probably, the chief factor—(Arch. Fur Kinderh. Bd. viij, H. 5—Quoted in Arch. Pediat, November, 1887.)

Monti recommends, on the strength of his success, irrigation of the stomach and bowels with antiseptic solutions, the agents used being resorcin, benzoate of soda, bichloride of mercury, hydro-chloric acid, sodium chloride in combination with sodium carbonate, and creosote. The strength of these should be properly regulated and at the same time the indicated supportive or sedative treatment should be practiced—(Arch. di Patol, Inf., July, 1887—Quoted in Arch. Pediat, November, 1887.)

Cadet de Gassicourt recommends for diarrhœa of infectious origin, creosote, carbolic acid, benzoate of soda or resorcin and Comby advises naphthalin. The prescription of Rilliet and Barthez, nitrate of silver in weak solution, frequently repeated is approved. (Rev. Mens. des Med. de l'Enf., September, 1887—Quoted in Arch. Pediat., January, 1888.)

Widowitz advises in all forms of intestinal catarrh in children, the use of naphthalin solely for its antiseptic properties. The drug if pure may be given without fear of unpleasant results, and was found especially efficacious when combined with alcohol, opium and oil of peppermint. (Joheb. F. Kinderh., Bd, xxvj., H. 3 and 4—Quoted in Arch. Pediat, January, 1888.)

Lounine also advises naphthalin in chronic diarrhœa, because of its disinfectant properties, its action being almost that of a specific. (Wratsch, quoted in Bull. Cin. de Thérap., December 15, 1887—Quoted in Am. Jour. Med. Sci., February, 1888.)

Bogouche has advised the administration of resorcin dissolved in castor oil, in diarrhœa with fetid dejections (Jour. de Med. de Bruxelles, Sept., 1885, quoted in Med. Rec., Nov. 14, 1885.)

Finally Douglass Morton, while considering the primal cause of the disease to be thermic, advises the administration of anti-ferments as of chief importance, and selects, as his anti-ferments the powerful germicides, nitrate of silver and bi-chloride of mercury.*

---

* Med. Rec., Sept. 18, 1886.

This gives, so far as I have been able to make it such, a fair resumé of the work of the past year in this particular branch. The disease is, happily, not met with so frequently in this climate as in others. It is not intended to go into the subject of the local statistics at all; but reference to the reports of the State Board of Health will show that the disease is constantly present, sporadic cases and small epidemics being reported.

This rarity of the disease, which is, however, comparative only, has seemed to me a sufficient reason for bringing the subject of its etiology and treatment more especially to your notice.

HENRY M. SHERMAN, M. D.
920 Market Street.

SAN FRANCISCO, April 19, 1888.

DISCUSSION OF COMMITTEE ON DISEASES OF CHILDREN.

Dr. Henry Gibbons, Jr., of San Francisco, in opening the discussion, said: Summer diarrhœa is a disease which is almost unknown in this city. We have diarrhœa, but nothing to compare with the summer diarrhœa of the East. He enquired if, in the treatment of these cases with naphthaline and sodium salicylate, no other treatment is used in connection therewith. Is it to be understood that no opium is used, but that the treatment is conducted solely with one or other of these drugs?

Dr. Sherman—In the case reported by Dr. Holt, no opium was used.

Dr. Gibbons—Without any knowledge of the probable bacterial origin of the disease, the older physicians were accustomed to use calomel. The initial treatment was, as has been mentioned in this paper, the exhibition of a dose of castor oil, in order to remove the decomposing materials on which the disease depended. This is the treatment specially advised by West. In such cases, both calomel and hydragyrum cum creta were also used extensively for a like purpose, not only for the initial purpose of removing the defective secretions, but for
pose of a continued treatment. It seems, at th
that the older physicians had a little more pract
of the value of some drugs than those of a later p
they had; for you will remember at one tim
similar preparations were almost tabooed. Now
they are germicides, and probably accomplisl

of good on that account, if we believe in the efficacy of the bacteria in the production of summer diarrhœa. The older physicians were also accustomed to use creosote, which is of some value. It has been long my practice in the treatment of diseases of this character to commence with a dose of hydragyrum cum creta, or calomel, often guarded, as the expression used to be used, with a certain amount of opium ; and one dose will sometimes be sufficient to practically cure a severe attack of diarrhœa. I must confess that I have not arrived at a conclusion which would make me willing to discard opium in the treatment of these diseases. Long ago I learned the efficacy of bismuth and opium in the treatment of children and adults, and have found it an excellent combination.

Dr. J. A. Anderson, of San Francisco, would not attempt for a moment to criticise the paper which had been presented, were it not that it seemed to inculcate the idea of treating these diseases by the antiseptic method alone. That the diarrhœa is occasioned by bacteria all will admit, but there are cases when the ptomaines and bacteria in the system have brought about a train of symptoms, which the mere administration of germicides will not remove. A child whose temperature has run up to 104 or 105° F. with cholera infantum may be filled up with germicides; but unless you lower that temperature, your removing the germicides will not relieve the child. Place the patient in a cold bath, and lower the temperature, as the doctor suggests, and also give opium, which decreases the secretions; and thus takes away the food of the bacilli, and you will have greatly aided your antiseptic treatment. The speaker said that he practiced on the south of Market Street, and saw true cases of cholera infantum. He recommended the use of the cold water bath, and especially opium.

Dr. Geo. Chismore, of San Francisco, did not see that the general practitioner had at present a sufficient justification for abandoning older methods, and basing his practice exclusively upon the theory of bacteriology. Until the battle between the micro-cocci and the ptomaines shall have been settled, until something more definite is ascertained, by which we can go to the bedside with more assurance and confidence, we will have to abide by the older methods. Another point which struck him as worthy of note was that the preceding dose of castor oil is in many cases sufficient to cure a case of itself. There seemed to be a direct conflict in the practice followed. A dose

was given to clear out the bacteria, and then a dose of opium to lock up the bowels, and retain them there. In his practice, in many cases, during the hot season and fruit season, of children, with a temperature of 103 to 105° F., the administration of four grains of calomel and a little suger would often find the child on the next morning minus its temperature, plus an appetite, and virtually well.

Dr. G. F. G. Morgan, of San Francisco, said that if the diseases mentioned by Dr. Sherman were due to bacteria, we might hope to destroy their activity by the free use of alkalies. He had understood Dr. Rosenstirn, last evening, as stating that modern investigation had shown that bacteria did not thrive in alkaline media, if so, the employment of alkalies was logical.

Dr. Sherman, in replying, said: Only those remedies which had been advised in the last year or so were considered in his report. The older methods were left untouched. West, in his administration of castor oil for the diarrhœa of children, gave it in connection with opium in very small doses, but frequently. Its effect never was to clean out the bowels. The speaker used it very often. It always soothed the intestines, and gradually checked the diarrhœa. Calomel is known to be a germicide. Bismuth is also acknowledged to be a germicide, and is used in surgery for wound dressing; the wounds being douched during the operation with water in which bismuth is suspended. Oxide of zinc is used in the summer diarrhœa of children, especially for its control over vomiting. It has also been used as a wound dressing. One class of remedies much used, are the astringents, gallic and tannic acid, tincture of catechu and tincture of kino. How they can be antiseptics is at first a little puzzling. But if we remember that they have the property of forming insoluble salts with some alkalies, it is quite possible that they may form such salts with the alkaloidal bodies, the ptomaines, and thus render them inert. In regard to whether the treatment should be limited solely to antiseptics, it was stated by Holt that these were the only remedies used. The true indications of the case should be met e
by sedatives or stimulants. There is no doubt a
ciency of a sedative dose of morphia, or a sti
alcohol, or digitalis, or nux vomica, but th
was by antiseptics, and these others were sul
iliary.

REPORT OF COMMITTEE

ON

OPHTHALMOLOGY, OTOLOGY, ETC.

By GEORGE C. PARDEE, Ph. B., A. M., M.D , Chairman,
SAN FRANCISCO.

Mr. President, Ladies and Gentlemen:

Although the Committee on Ophthalmology, Otology, Laryngology and Rhinology is composed of five members, the work of preparing and presenting this report has devolved, unfortunately, upon one person viz.: its chairman. If, therefore, there are any apologies to make (and I rather think there are), I wish to make them in advance and to announce that I have been compelled to rely entirely upon myself in the preparation and compilation of this paper.

In preparing this report I have assumed that the object of this committee is to collate and present to you for your consideration a *resumé* of the more important advances and discoveries which have been made during the past year in the four sciences mentioned above. You do not care to hear the finer points of these subjects discussed in the manner which they would be discussed by specialists; but you desire to have placed before you their salient and most interesting points. In following this plan, I have studied the medical literature of the day and have culled therefrom whatever seemed to me to be of sufficient interest for your consideration.

CORNEA.

The question of the role taken by micro-organisms in the causation of corneal ulcers is one which has given rise to considerable discussion. Many are beginning to adopt the galvano-cautery for the destruction of the microbes supposed to be the cause of the corneal lesion. The actual cautery in the treatment of corneal ulcers was proposed some years ago ; but it is only comparatively lately that it has received any general attention. Now it has many warm advocates;—and there are many who argue against its use. The arguments against it are about as follows: That it destroys a certain amount of healthy corneal tissue, and therefore leaves a larger corneal

scar; that its use is not certain, inasmuch as it can not be certainly applied to all points of the ulcer where microbes may have found a lodgment; that it cannot reach and destroy microbes which have already found access into the anterior chamber. The opponents also say that if the corneal disease is dependent upon the action of microbes we have at hand numerous antiseptics which can be applied effectively to all parts of the ulcer, and without destroying any healthy corneal tissue. Thus, Hotz* uses frequent irrigations of a 1 to 5,000 solution of corrosive sublimate and keeps the eye covered with a cloth, wet in the same solution. He claims as good, or better, results as with the cautery. Many others express themselves in a similar manner. I also have had one case of serpigeuous ulcer, which I treated according to Hotz's method and achieved brilliant results. Six months ago I should have resorted to the knife or the cautery. On the other hand, Galezowski, Behue, and many others, use the cautery continually.

One of the most prolific causes of blindness is blennorrhœa neonatorum. Thanks to Credé, of Leipzig, it has been found that this disease depends upon infection of the eyes from the vagina of the mother. In his free lying-in hospital, where are born several hundred children yearly, and where formerly a large percentage of the infants were attacked by blennorrhœa, Credé has, by the use of antiseptic vaginal douches and a drop of a four-grain solution of nitrate of silver in the children's eyes immediately after birth, succeeded in almost totally eradicating the disease from the institution over which he presides. Recently, however, Kaltenbach reports equally good results from the use of the vaginal douche and the thorough cleansing of the infant's eyes with distilled water.

The transplantation of a portion of animal cornea into the human eye in cases where the whole cornea has become densely opaque, and produces almost total blindness, is an operation which has been now and then tried. Generally unsuccessful, there have been, however, a few successful cases. Adamück, after several unsuccessul attempts at transplanting the cornea of rats, has succeeded in securing transparency in three cases of dense leucoma by transplanting the cornea of fowls into a trephine cavity made for its reception. The vision secured

* Am. Jour. of Oph., June, '87.

was good enough to enable the patients to grope their way about. Von Hippel also reports a case of the successful transplantation of a piece of rabbit cornea, raising vision from the power to count fingers at three feet to 1-10 of normal. This is, in my humble opinion, one of the masterpieces of ophthalmological surgery.

As bearing upon the part played by microbes in the causation of suppuration in eyes operated on for cataract, etc., Knapp has lately shown that the slightest wound in the cornea of rabbits, made with septic instruments, leads to suppuration; while the greatest injuries may be inflicted with aseptic instruments without the slightest inflammation. This is an important discovery, and virtually sets at rest the cause of post operative inflammations.

GLAUCOMA.

All of the writers on ophthalmology, a third of a century ago, united in declaring that glaucoma was beyond the skill of man to cure. So when Von Græfe published his wonderful discovery of the healing virtues of an iridectomy it seemed as if a panacea had been found for this most terrible of diseases; and every ophthalmologist felt that he now had a weapon with which to conquer this hitherto unconquerable affection. But as time passed on it was found that a certain percentage of cases of glaucoma were not amenable to an iridectomy and, in spite of it, went on surely to final blindness. This fact has led to the constant search for other and more certain means for curing the disease. Operation after operation has been devised, tried, praised and abandoned. But still the search goes on, and the theories of the cause of glaucoma are nearly as numerous as oculists. At the present time, De Weckers' sclerotomy is striving for pre-eminence with iridectomy.

Its renowned originator claims for it virtues which certainly give it more than a temporary interest. I have used it in one case, in conjunction with eserine, and the combination was ly very successful. Landesberg, after performing the no times, says it is a good one. Galezowski and ve proposed and practiced a sclerotomy by plung- 's cataract knife into the vitreous some distance ciliare—and both claim good results from lal recommends the tearing of the infratro- oma, and reports cases in which all the

symptoms were lessened where iridectomy and sclerotomy had failed.

Since the discovery of eserine and its effect upon the tension of the eye, it has been frequently tried in glaucoma; lately, however, the use of this drug in this disease seems to have received a new impetus, and a number of cures are reported. Thus, Armaignac* reports 2 cases of chronic glaucoma with good results from the use of eserine and cocaine in combination. Panas also reports four cases treated successfully with eserine; while quite a number of scattered single cases, have, from time to time, appeared in the medical journals. What experience I have had with the drug has given me a very favorable impression of it. Thus, in fourteen cases of glaucoma which have come under my observation during the last three years, I have used eserine or pilocarpine alone in six cases.† All of these six cases have done as well, or better, under the myotic alone as similar cases have done under iridectomy. In all these cases the symptoms of glaucoma were unmistakably present, and I should have unhesitatingly proposed an iridectomy had eserine not been at hand. Even in the other series of cases, eight in number, where I operated, eserine was used for months after the operation, and, I believe, helped greatly toward the improvement which took place in some of them. But in no one case of the eight operated upon did vision improve as greatly as it did in those cases where I relied entirely upon eserine. It is true that most of the operated cases had progressed further toward blindness than those of the eserine series, and that there was not the same chance for improvement. But it has certainly seemed to me that where an operation was performed, the final improvement—where improvement took place—depended largely upon the continued use of eserine. Even in those cases where no improvement in vision followed the operation, but where the small amount of vision present was retained, I attribute to the use of eserine even this small, though very pleasant success.

---

* Reviewed in Arch. of Oph. for March, 1887.

†It has been claimed that glaucoma is not as frequent in this country as it is in Europe. The percentage of glaucoma among eye diseases in Europe is given, I believe, as a little over one per cent. These fourteen cases in my own practice agree with the European figures—a little over one per cent. Of my fourteen cases eight were males—a considerably higher per centage than is given by European observers, whose figures show a considerable excess of females.

CATARACT.

There is, perhaps, nothing in the domain of ophthalmology which excites so much interest in the mind of the specialist as that of cataract and the best method of removing it. Von Graefe made, what seemed at the time and for years after, to be the final discovery as to the best method when he invented the linear incision known by his name. But within the last few years, discussion, trial and experiment have been indulged in throughout the ophthalmological world, and the tendency to modify, or even abandon, the classical Von Graefe operation is abroad and constantly gaining adherents. The primary effect of the linear incision, with its large and disfiguring iridectomy is, when successful, nearly perfect. The dangers, too, which accompanied the old flap operations are, to a great extent, avoided. But it has, on the other hand, dangers peculiar to itself, and the final result of the operation is, after years, often disastrous to the vision. The large iridectomy, besides being a disfigurement and mutilation, leaves the eye deprived of the power to regulate for itself the proper amount of light which, without injury to its delicate nervous mechanism, can enter its depths. This may, and often does, lead to disease of the choroid and retina, and thus nullifies the splendid results primarily gained by the operation. The large and immovable pupil, too, is not the best for vision. These are the principal reasons which have led ophthalmologists to seek for new methods for removing cataract and for methods of preparation for and treatment during and after the operation which shall obviate as much as possible the dangers of and objections to the classical operation.

This tendency to abandon the Von Graefe linear incision has been toward the older Daviel's corneal flap operation. This, at first glance, would seem to be a step backward, as the linear operation was adopted because it did away with many of the dangers and difficulties of the older operation. But when we recollect that with cocaine, antiseptics and eserine we have the means of combating with greater or less success, the very dan-
gers and difficulties to overcome which Von Graefe
the linear incision, we find that, instead of a step ba
have, theoretically at least, made a step forward i
or attempting to abandon, the linear operatio

Prof. Knapp, of New York, after giving th
a trial, sums up its benefits and defect

"Simple extraction without iridectomy is an operation of the highest order, and practicable in the majority of cases with the same degree of safety as the extraction combined with iridectomy. In a considerable minority of cases, however, the latter method is preferable; in a number of cases the indications for iridectomy show themselves before, in others only during the operation. It preserves the natural appearance of the eye. The acuteness of vision, other things being equal, is greater. Eccentric vision and the correct localization of objects in the visual field are much better. Parts in direct connection with the ciliary body, such as shreds of capsule and iris, are not so liable to be locked up in the wound and thus transmit morbid conditions to the most vulnerable part of the eye, the ciliary body. It may not necessitate so many after operations. Its disadvantages are: It is more difficult of performance. Prolapse of iris and posterior synechiae are more numerous. It is not applicable to all patients, whereas the combined operation can be more generally used. It requires a quieter and more manageable patient during and after the operation than is needed in the combined operation."*

He operated on 29 cases, losing 1, a most unfavorable case; and obtained 66 per cent. of ideal recoveries—that is, cases where the pupil was round, movable, and entirely free from inflammatory products. Twenty cases had vision of 20-100 or better, two cases having 20-20 or normal vision.

Mooren, of Düsseldorf, performs a similar operation, as does Galezowski, of Paris, Power, of London, and many others.

In all operations upon the eye, but more especially in cases where the eyeball is opened, systematic antisepsis, or asepsis, is now looked upon as a prime necessity. Not only is this theoretically required in these days of microbes and bacilli; but from some experiments made by Knapp on the eyes of rabbits, it has been proven that aseptic operations and after treatment are not followed by suppuration, while contamination of the wound by septic material invariably leads to suppuration. Hence, in cataract operations, it is now customary to sterilize both instruments and the field of operation and its surroundings and to apply antiseptic dressings. Not only this, but many operators of world-wide reputations wash out the anterior chamber with antiseptic solutions. Thus Kazaurow, under antisepsis had no suppuration in 100 successive cases of extraction; and other operators

* Archives of Ophthalmology, March, '87.

report similar lessening of the frequency of inflammation and suppuration under antisepsis.

But the greatest and most sweeping change in any part of the treatment of cataract operations is in the after treatment. But a few years ago it was considered absolutely necessary to cover the eyes of a patient operated on for cataract with a dressing of lint confined by many turns of a roller bandage. He was then put to bed, confined on his back as long as the mood or fears of the operator required—often three or four days. He was not allowed to eat solid food or move until the wound had healed. A patient under such circumstances is truly an object for pity. Racked by pains caused by the enforced dorsal decubitus; fed upon gruels while enjoying good bodily health; forced to lie quiet and be silent while his mind is lively and active; his eyes heavily bandaged and all light excluded, his condition is truly a pitiable one. Within the last few years, however, a few bold operators have broken from the bonds of authority and have adopted a more rational course. And within the last year the subject has received a great deal of favorable discussion and comment. Michel *, Chisholm †, have contributed their experience in this matter. Of the two, Dr. Chisholm has made the most radical departure from the old routine. Both reason that when the lids are held lightly in place they form a splint molded to the shape of the eye-ball and thus best tend to keep the edges of the corneal wound in apposition; while bandages over a wad of lint tend to press the lips of the wound apart. Again, if the eye be thickly bandaged for several days, it becomes so sensitive to light that it requires a long time to accustom itself thereto when the bandage is at last removed. Again, if the edges of the wound be held in apposition by the lids acting as a splint, moderate motion may be safely allowed the patient with safety to the eye and with benefit to the mental comfort and well-being. For these reasons, Michel and Chisholm use as a dressing for an eye just operated on for cataract or iridectomy, a simple piece of thin, diaphanous plaster. Michel confines his patients to bed and on the back for two or three days, but Chisholm allows his patients to sit up and move about as they please. Neither does he bandage or in any interfere with the non-operated eye, nor try to darken the room. His experience has been most favorable, his recoveries quicker

* Archives of Ophthalmology, September, 1886.

† American Journal of Ophthalmology, June, 1887.

and more satisfactory in every way than with th
He reports 98 operations with as good, if not
than under the old method. Michel even opera
tomy at his office and allows the patient to walk
this seems truly heroic; but at the same time, r
any rate, it is more humane than the old meth
other oculists are coming to adopt the same view

REFRACTION.

Owing to the increased amount of work requir
in our days of school-cramming, refractive errors
more frequent. In America, to be sure, we do n
people wearing glasses as in Europe. But the
that as school demands increase, more children
to wear glasses for errors of refraction, princi
Fliester[1] discusses the cause of near-sightedness
monograph, and, throwing aside all other theor
the origin and development of myopia to the p
rectic muscles on the eyeball in the position of con
the simultaneous dragging on the posterior part
by the optic nerve. This causes an elongation
and hence myopia, which permits of a still close
the object looked at. This causes a greater conver
in turn, causes a greater elongation of the eyeba
the vicious circle goes on, and progressive myopi
Fliester advocates the constant use of correcting
cases of myopia, where the accommodation is str
pound it. He reasons that the glasses permit a
the holding of objects at a greater distance from t
lessens the degree of convergence, and the vicio
ing in progressive myopia, is broken. He cites
cases in support of his position.

In support of the theory that the tendency
hereditary, I report the following cases. A very
father (Ou D) has five children. Of these thr
under my observation, suffering from myopia
astigmatism, varying in degree from two to ten d
sight of the other two children is said to be perf
ped, from the descriptions given, that they are a

[1] Arch. of Ophth., Vol. XV., No. IV.

RETINA.

During the session of the International Medical Congress, held in Washington last year, one of the subjects discussed with great interest was the treatment of detachment of the retina. The therapeutics of this most distressing trouble have generally been considered as offering but little hope for even a re-adjustment of the detached membrane, to say nothing of a return of vision. But at the congress several ophthalmologists spoke of plans for its treatment, which, in their hands, had proved of great benefit. Thus Galezowski, of Paris, uses a syringe, introduced through the sclera, and aspirates the fluid from behind the retina. Out of seventeen cases, thus treated, he cured two and ameliorated the condition of the rest. Bettremieux, on the other hand, reports in Archives d'Ophthalmologie sixteen cases, collected from various quarters, where iridectomy cured sixty-eight per cent., some of the cases being under observation for years. On the other hand, Fano reports two cases of detachment in which iridectomy was unsuccessful. Holt reports two cases of detachment, treated successfully by confinement, bandaging, atropine, and hypodermic injections of pilocarpine. I, myself, have seen some considerable amelioration of symptoms and increase in vision from the long continued use of iodide of potassium and pilocarpine per orem. This case was one of very long standing and bilateral.

Retinitis Pigmentosa has always been considered incurable. And, though three reported cases of improvement do not prove anything, yet even a ray of hope in such a desperate disease as this, is to be looked for with more than a passing interest. Hasket Derby reports two cases in which the field of vision, but not the acuity, was increased by long-continued treatment with the constant current. Standish reports one case, where both field and acuity were improved by the same means.

TRANSPLANTATION.

About two years ago there was considerable stir made in the ophthalmological world by the announcement that a rabbit's eye had been successfully transplanted into the human orbit.* Following this announcement numerous others tried the same experiment, but not a single operation was successful. Even

*H. W. Bradford, Boston Med. and Surg. Jour., Sept. 17, 1885.

the first reported case, which at first seemed sure of success, turned out to be a failure, although the optic nerve and muscles were united to the ball and the eye looked nearly normal for several months.† Thus perished a sensation which threatened at one time to revolutionize the act of prothesis oculi.

EYE-STRAIN.

Ranney,* of New York, in a very interesting article, reports at length upon the causative effect of eye-strain upon various nervous functional diseases, and the cure of the latter by operations upon the external ocular muscles and the correction of errors of refraction by glasses. He reports a number of severe and long-continued cases of epilepsy, chorea, migraine, etc., cured by this means. His argument is, in brief: "The human body has only a certain amount of nervous energy, which can be used in the normal action of the various parts of the body. This energy is dealt out, so to speak, by the brain and nervous centers in quantities to suit. If now, any part of the body, from overstrain, requires more than its due share of the total nervous energy at the disposal of the nervous centers, other parts of the body must suffer from want of their proper share of nervous energy, and their functions must be disturbed. At the same time, certain of the nervous centers are overworked and react, by sympathy, upon other centers; and thus various nervous symptoms are produced. Insufficiencies of the external ocular muscles and errors of refraction, especially hypermetropia and astigmatism, require the constant expenditure of a larger amount of nervous energy than the normal condition and cause a great variety of nervous phenomena, which may be cured by tenotomies and the correction of refractive errors. This is a subject of very great importance, and while not entirely new, is one which has not yet been brought to perfection.

ENUCLEATION.

Knapp‡ reports 500 cases of enucleation performed by him; 234 of these, 45 per cent., were enucleated on account of injury; 70 eyes were removed immediately after injury; 48 enucleations

†Archives of Ophthalmology, June, 1887.

*N. Y. Med. Jour., Jan. 7–14, 1888.

‡Arch. of Oph.. June. '87.

were for foreign bodies within the eye. One body remained quiet for ten years, and one for twenty-five years, before requiring enucleation of the eyes containing them. He enucleated 18 times for glioma,—eleven of which were in males. The ages of the patients affected with glioma varied between five months and twelve years; but in all but three cases, all the patients were less than 4 years. Five cases returned within two months, the rest were not heard from after the operation; ten cases were so badly affected that a relapse was confidently expected; thirty eyes were enucleated for sarcoma—twenty-three males; the left eye fifteen times, the right eye seven times, the side not stated in the other eight cases. The youngest case of sarcoma was 21 years, the oldest 74 years; the great majority were between the ages of 38 and 50 years. Among these thirty cases of sarcoma there were but two cases of leuco-sarcoma, the rest being melanotic. The time of development varied between five weeks and twenty-eight years. There were nine cases of carcinoma, all epithelial. He enucleated fifty-one times for sympathetic irritation, always with success. Of these, one exciting eye remained quiet forty years, one thirty-three, one twenty-eight years. He enucleated twenty-one times for genuine sympathetic ophthalmia,—one case three weeks after injury, one twenty years; six cases of iritis simplex, one of serous iritis, five of neuro-retinitis, and four cases of plastic irido-choroiditis. These 500 cases, all within the experience of one man, form quite an interesting exhibit as regards the frequency of enucleation and the causes therefor.

The rare cases of death after enucleation, of which Nettleship has succeeded in collating but 28 cases, resulting from meningitis, and of which Galezowski has observed but two cases, receives one more addition in the case of Davidson*. This case, as the majority, died from meningitis three days after the operation.

This leads to the consideration of the fear of enucleation during the progress of panophthalmitis. Von Graefe, after experiencing one or two fatal results following enucleation, performed under such circumstances, formulated the rule never to enucleate during the progress of a panophthalmitis, but to wait until the acute symptoms had subsided. This rule, almost entirely on the authority of Von Graefe, became the procedure on the continent of Europe, especially in Germany;

*Ibid.

though English ophthalmologists have not so closely followed his teachings. Alt, of St. Louis, however, reports eight cases of enucleation, done without antisepsis, when the panophthalmitic process was at its height, and had no bad result in any case. Rolland, also, evidently does not believe that the enucleation of an acutely panophthalmitic eye is a very dangerous thing; for he has performed 110 such operations without any untoward results.

Wounds in the ciliary region of the eye are considered as calling for an immediate enucleation of the injured eye to prevent sympathetic inflammation and loss of the other eye. Von Moll* reports three cases of extensive injury to the eyeball in the ciliary region, which would formerly have called for enucleation on account of the injury and the fear of sympathetic inflammation. He treated these cases expectatively and secured good results. With this experience Von Moll favors conservative measures in all cases of injury to the eye, with which I, modestly but most emphatically, agree. To his three cases I have the pleasure of adding eleven, all of which would certainly have been enucleated, had the rules, made and provided in such cases, been followed. Of these eleven cases six are enjoying vision enough in the injured eye to enable them to go about on the street should they lose the other eye. Of these results I think I have just cause for pride.

But there are those among ophthalmologists who do not favor enucleation, but desire to substitute other operative measures in place of it. They say that enucleation may be followed by death, that it causes a great deformity, that it leaves but a poor support for an artificial eye, etc. Some of these ophthalmologists favor, under certain circumstances, exenteration of the bulbus, or, under certain other circumstances, the severing of all the nerves leading to the eyeball, leaving the ball in place. The discussion as to the benefits and advantages of the one over the other is still going on with authority on all sides. Mule, of England, proposes to remove the contents of the eyeball down to the sclera and to insert within the empty sclera a glass-ball. By this means he gains a stump which will receive an artificial eye and, on account of the preservation of the muscles and their insertions into the sclera, give it nearly, if not quite, perfect motion. But this procedure does not entirely, according to some authorities, give a perfect protection against sympathetic inflammation.

* Arch. of Oph., Jur

STATISTICS.

As showing the causes of blindness, Magnus has collected and tabulated 3,204 cases of incurable, binocular blindness occurring during the first 20 years of life. Of these, 17.19 per cent. were congenital; 33.08 per cent. were caused by idiopathic diseases of the eyes; 8.15 per cent. resulted from injuries; 33.17 per cent. followed constitutional diseases. In investigating the causes of congenital blindness he found that it may be due to the heredity of a malformation—either directly from one of the parents or as a family trait—or some constitutional disease may be transmitted from the parents to the offspring. Contrary to a widely accepted notion, he found that consanguineous marriages are not a cause of congenital blindness, though congenitally blind children result from such marriages on account of the disposition to disease common to both parents as a family trait. Blennorrhœa neonatorum furnished 23.50 per cent. of all these 3,000 cases; and there were eight per cent. more females than males. This disease is the most potent of all causes of blindness. During the first year of life it furnishes 71.99 per cent. of all the cases of blindness; and it is more destructive among the illegitimate than among the legitimate children. On analyzing the blindness resulting from contagious and infectious diseases, Magnus finds that small-pox furnishes a large percentage of blindness, and that the frequency of blindness from this disease varied inversely as the thoroughness of vaccination. In Austro-Hungary, where there are no vaccination laws, small-pox causes more blindness than blennorrhœa, although illegitimacy, with its attendant dangers, is frequent in that country.

REMEDIES.

About two years ago, Jequerity was announced as the great remedy for pannus, trachoma and various other eye diseases. It was extravagantly praised on all sides and used in many cases where other means would have been successful. The natural result was that, from the severity of the inflammation caused by the drug, many eyes were lost, which otherwise might have been saved. So it has come about that Jequerity has fallen from its high place and is defended but by few. Even its introducer (De Wecker, I believe) has lately said that he had called attention to it simply with the hope of substituting it for

the more dangerous inoculation with blennorrhagic pus, which was sometimes used to clear up a resistant pannus or cure a stubborn trachoma. Having succeeded in this, he felt that he had accomplished his purpose.

About the same time cocaine was introduced. But, unlike Jequerity, cocaine has taken a firm and apparently lasting place in the list of ophthalmological drugs. So firmly has it become entrenched that one wonders how in the world painful operations upon the eye were performed before its introduction. I have used it in all operations upon the eye—even to enucleation—and have yet to see any bad results which could be attributed to it. In no case where I have used the drug—and I use it a dozen times a day—have I found any of the bad results reported by other observers. Among these bad results are mentioned corneal opacities and a species of vesicular eruption. Even in cases of enucleation, where a drachm or more of a four per cent. solution was used, I have seen no constitutional effects.

That comparatively new drug, antipyrine, seems to be useful under a great many circumstances. Used for the amelioration of ciliary neuralgias caused by affections of the eye it acts like a charm, subduing the pain, but leaving none of the unpleasant after effects of opium or its derivatives.

NOSE.

Rhinology has, within a comparatively short time, become a science by itself. The time has gone by when all affections of the nose were called either "nasal catarrh" or "nasal polypus." And, instead of the armamentarium for the treatment of nasal diseases consisting of a hand-ball spray, a powder blower and a pair of dressing forceps for the extraction of polypi, one who proposes to keep up with the times and make a scientific study and practice of nasal diseases, must provide himself with air-compressors, cautery batteries, insufflators and a thousand and one instruments of greater or less utility. As was recently said by an eminent rhinologist: "nasal therapeutics is for the most part nasal surgery." And this accounts for the great number of drills, revolving knives, saws, trephines, gouges, snares, etc., etc., which are used, and modifications of which are constantly being invented. To say that all of these instruments are necessary is to make a strong assertion. For rhinology has not yet arrived at the stage where its principles of

procedure are entirely settled or the simplest and, consequently, the best means have been ascertained. On this point, Dr. F. H. Bosworth† says : "The point of view which I take is, that when we knew little about the treatment of these (nasal) diseases, our machinery was very extensive. As our knowledge increased, the machinery rapidly diminished; and now that we finally obtain striking success in the management of the majority of the diseases of the upper air passages, I think I may safely say that all the machinery necessary might be carried in a small hand-satchel." Yet it is a fact that surgical interference with the nasal cavities is often necessary not only for the cure of nasal troubles, but for reflex and secondary affections of the whole respiratory tract and its adnexa. Thus Böcker in a summary of "The Relation of the Diseased Nasal Mucous Membrane to Asthma*," says, among other things, that "the impossibility of nasal respiration may produce asthma." And, as for affections of the larynx, Bosworth‡ makes the startlingly sweeping assertion: "I think I am safe in saying that in the whole history of laryngology no case of so-called chronic laryngitis was ever cured by topical application....."And "the condition called chronic laryngitis is merely symptomatic and secondary to disease of the nasal cavity in every case." And, "the treatment, then, of catarrhal affections of the upper air tract, from my point of view, consists in the treatment of the nose." Ear troubles are often also greatly benefited by restoring the nasal cavities to their normal condition, while other reflex phenomena are shown in the following cases: Haek, of Freiburg, reports a well marked case of exophthalmic goitre in a girl of 15 years of age, cured by cauterizing the swollen mucous membrane; all of the symptons disappeared. He explains this case by assuming that reflex irritation was carried from the chronic inflamed and swollen nasal mucosa to the heart, thyroid gland and orbit—thus producing the symptoms of the exophthalmic goitre. Ziem, of Dantzig, has cured a number of cases of blephospasm, epiphora, and re-current affections of the conjunctiva and cornea by destroying adenoid vegetations of the naso-pharynx and by removing hypertrophied tonsils. Gruening, of New York, gives histories of

†Med. Rec., April 30, 1887.

*Jour. of Laryngol. and Rhinol., January, 1887.

‡ Ibid.

eight cases of reflex relations between the nose and eyes, consisting in burning and smarting of lids and eyes, inability to fix eyes, increased vascularity of conjunctiva, etc. All these cases were cured by cauterizing the nasal mucosa, although nasal symptoms were absent. As for the importance of treating nasal troubles in ear diseases, it is a well-known fact that the ear disease often depends upon and is caused by the disturbance in the nasal cavities, and that the curing of the latter often determines the cure of the former. Indeed, so sure are some rhinologists of the importance of the nasal cavities in even the slightest disturbance of the larynx or pharynx that they attack the nasal mucous membrane with caustics, cautry, saw, gouge, and trephine on the slightest provocation. Some of them, indeed, treat the hoarseness and loss of timbre in singers' voices by cauterizing the lining membranes of the nose.

But, although the nose will permit of a great deal of hard usage, it sometimes refuses to submit and rebels with disastrous effect. Thus, one case of hypertrophic rhinitis on being treated with the galvano-cautery began to bleed, and, in spite of all efforts at stopping the hemorrhage, resulted in the death of the patient. This is the only case of the kind of which I have heard, and although the use of the galvano-cautery in the nose is of very common and harmless occurrence, it serves to remind us of the possibility of serious results. Ziem,* of Dantzig, reports three cases of impaired vision after the application of the galvano-cautery to the nasal mucous membrane. He argues that the cauterizing of the nasal mucous membrane produces a reflex hyperaemia of the papilla and the internal parts of the eye — which condition he observed in all three cases — the anastomosis between the nasal and orbital vessels being close. On account of these cases he has abandoned the use of the galvano-cautery in the nose.

As a sort of rhinological curiosity, I may be allowed to mention the report of Dr. Roe† of some cases of pugnose, which he succeeded in changing into the more aristocratic Grecian outline by removing the redundant tissue in the nose-tip through an incision made from within the nostrils. The change from the picture labelled "before operation" to that, bearing the

*Am. Jour. of Oph., June, '87.

†Med. Rec., June 4, '87.

legend "after operation," is truly wonderful. With this operation before one, the heartaches imposed by the plebeian pugnose need be no longer suffered.

The question of the cause and means of stopping epistaxis is one which recurs every once in a while in the medical journals. The fact of its recurrence so often shows that there are no means at our disposal which will apply to every case. The latest method is that of Verneuil. He abandons all attempts at local applications to the nose itself, but pins his faith on the application of a large blister over the liver. He reports three cases which had resisted all other measures, stopped by this means. He also acknowledges that Galen speaks of this means of stopping a dangerous nose-bleed. But why would not a revulsive to any other part of the body have an equally good effect?

As regards the cause of idiopathic epistaxis, Dr. Erwin, of Bay City, Mich., claims to have noticed that it occurs most often in conjunction with hypertrophied tonsils. He argues that the enlarged tonsils produce pressure upon the veins of the neck and thus cause a passive congestion of the parts above, the nasal mucous membrane among the rest.

A short time ago the galvano-cautery seemed to be the favorite means for destroying posterior nasal hypertrophies. But at the Ninth Congress of the American Laryngological Society, after considerable discussion, the application of chromic acid seemed to be most favorably considered.

There is a certain kind of brow-ache radiating from the roots of the nose and occurring in women generally at the menstrual periods. Glascow * finds that the nasal cavernous bodies are at such times in a state of erection, and he recommends the abstraction of a little blood from the congested parts as a means of curing the headaches. He reports several cases.

EAR.

At the meeting of the International Medical Congress held last year, Bishop, of Chicago, reported 5,700 cases of aural diseases. Of this large number of cases, over 25 per cent. were [illegible] ears of age; the sexes were about equally repre- [illegible] r cent. were chronic diseases; 90 per cent. were [illegible] middle ear. He is of opinion that the causes of

[illegible] Sept. 3, '87.

was 3 years and two months. The average age of cases which recovered was 4 years and 1½ months. Agnew† has compiled 1,000 cases of tracheotomy, with about 30 per cent. of recovery. So it would seem from the naked percentages as if tracheotomy were the safer operation. But intubation is as yet a new operation and has hardly had a fair trial ; its indications, contra-indications and best means of treatment are by no means entirely settled.

DISCUSSION ON REPORT OF COMMITTEE ON OPHTHALMOLOGY.

Dr. A. P. Whittell, of San Francisco, opening the discussion, said that he wished to direct special attention to one subject mentioned in the report—blennorrhagia at birth. It is something which must interest the profession in general, when we consider how much blindness is due to this one cause. It is in the power of almost every one attending a woman in confinement to prevent this sad result. When it does supervene, by proper treatment total blindness will never occur, although the vision may be impaired. Vision with one eye is better than none at all. To run the risk of losing a good eye by temporizing with an eye which has been hopelessly injured, and already lost to sight was, he thought, exceedingly bad practice. He inferred from the tenor of the opinions which had been quoted, that enucleation should be abolished, and that it was no longer considered a legitimate operation. He did not think so, but believed that it was eminently necessary.

Dr. Pardee thought that the speaker had misunderstood and misquoted him. He agreed that the operation of enucleation was a very necessary one, under certain conditions.

Dr. Whittell said that he had not intended to misquote the paper. He alluded to that particular form of blindness, with the symptoms of sunstroke which followed exposure to the rays of an electric light of about 1600 candle power, within a radius of 16 feet. The symptoms resembled sunstroke in every particular, and further observation might throw some light on the pathology of this affection.

Dr. J. D. Arnold, of San Francisco, wished to draw attention to one or two little points in rhinology. Dr. Pardee adverted to the fact that a number of obscure reflex symptoms have of late

---

Y. Med. Jour., July 23, '87.

been properly ascribed to some irritation in the nose, but he did not refer to the fact that a number of cases of asthma had been reported as thoroughly cured by cauterization of the hypertrophic tissues on the turbinated bones. Voltilini discovered that nasal polypus was frequently the direct cause of attacks of asthma; and merely by accident he found in his first case that by removing the polypi, an end was put to the attacks of asthma. Since then it has been discovered that not only the removal of the polypi, but the destruction of all the hypertrophic tissues in the nose will produce the same result; and that it will, in a great majority of cases, effect a cure. He would have liked to have heard Dr. Pardee refer more fully to the beneficial effect, which the introduction of the use of the galvano-cautery has had in the treatment of catarrhal diseases, which drive so many patients into the hands of the charlatan, and which are in 999 cases out of 1000 absolutely curable by this procedure, excepting, of course, cases of ozena.

Dr. J. H. Stallard, of San Francisco, believed that when we consider the amount of blindness which was caused by the neglect of ophthalmia neonatorum, it would be judicious to issue simple instructions to nurses and those having charge of infants. In his experience, milder astringents than the nitrate of silver had been sufficient, and he thought that some simple remedy might safely be placed in the hands of the laity. The use of these remedies should be just as much a part of the first dressing as the bath or the clothing.

Dr. H. D. Robertson, of Yreka, said that in the country the general practitioner was sometimes compelled to operate upon the eye, when the occasion was urgent and the patient too poor to obtain the services of an oculist. He had recently met with a peculiar case. The patient was a Kanaka with double cataract. He made the preliminary incision on the right eye, and gently grasped the iris; when, to his surprise, that structure came away in its entirety. When operating upon the left eye he was still more cautious, and grasped the iris with the greatest care, making no perceptible traction, but it also came away. He had watched the subsequent progress of the case, and with this exception it had been most satisfactory. On careful inquiry, he ascertained that there was no history of leprosy, but that the subject had had tertiary manifestations of syphilis.

Dr. Wm. Ellery Briggs, of Sacramento, had noticed the extremes to which some oculists have gone in doing away with

bandages, and giving the patient liberty in moving about. It seemed to him almost fool-hardy to operate for cataract, and to send the patient home with no bandage, and with one eye open. He would not attempt that. In regard to enucleating eyes, having had sad experience in several cases, he now advised enucleation when the eye was totally blind, and where a foreign body was probably present. He recalled two patients who had lost their eyes, one of whom would not submit to enucleation, though advised to do so. The other, having gone into the country for two days when ordered to remain under observation, returned with sympathetic ophthalmia; and after brief treatment went to other oculists, but is now an inmate of the asylum for the blind. He often enucleated eyes which appeared well, but he did not think that he had ever enucleated an eye which would be of any use as an organ of vision. When the vision is gone the surgeon is justified in removing the eye, if there is a possibility of sympathetic ophthalmia.

Dr. Pardee, in replying said that he would certainly enucleate an eye when there was any danger of its affecting the other eye. He was also in favor of enucleating when vision had been lost, provided the blind eye was a menace to its fellow—not otherwise.

REPORT OF THE COMMITTEE ON GRADUATING EXERCISES.

By O. O. BURGESS, M. D., San Francisco, Chairman.

Mr. President, and Members of the Society:

Your committee on Graduating Exercises would respectfully report that during the last year forty-four students have been graduated by the two regular medical schools of San Francisco. The faculties of these schools have afforded us the most ample opportunities to inquire into the methods of examination of candidates for graduation, and the attainments required of them to enable them to pass their examinations successfully. We have availed ourselves of these opportunities far enough to thoroughly satisfy ourselves that none of these graduates has been honored with a diploma who has

not fairly earned it. On the other hand, we are equally well satisfied that no injustice was done to those who failed to pass a satisfactory examination. It is gratifying to us to be able to state that, in our belief, the standards of requirements for graduation in these two colleges are fully as high as those of the best schools in the East, and much higher than are to be found in very many of the schools throughout our country. It is a fact that students who have failed to obtain their degrees in these schools, have had no difficulty in promptly securing them in the Eastern colleges. Many of the theses and examination papers of these graduates were of a very high order of merit. This shows not only ability and close application to study on the part of their authors, but it also speaks well of the methods and competency of the teachers in these schools. But, while we praise without stint both teachers and pupils, there are some improvements in the requirements for matriculation that we should be glad to see adopted. Our examination of the papers of the students showed us that, almost invariably, those who were most deficient in their medical attainments were also most lacking in their general education. Now, in view of the educational facilities of the present day, it is to be expected that he who has not brains enough or ambition enough to secure for himself a fair preliminary education, is not likely to distinguish himself in the acquirement of a medical education. We feel that in the best interests of the college faculties, of the profession at large, and especially of the student himself, that the requirements as regards preliminary education necessary to matriculation should be more exacting. We do not mean to say that our local colleges are less strict in this matter than the great majority of the medical schools of the country; and we are quite aware that the faculties of our colleges are anxious to raise their standard of requirements as high as the highest, as soon as they can do so without frightening away students to other institutions quite ready to receive them.

In this connection, it seems to us that every member of the profession has a simple duty to perform, when occasion arises, which may be of much service. Probably no student enters upon the study of medicine without first consulting some member of the profession as to the advisability of his doing so. Now, if the medical man so consulted sees and knows that the person consulting him is lacking in general education, it is his duty to advise that either the general education be brought

up to a proper standard, or that the project of medical study be abandoned. The uneducated man in the medical profession nowadays has little chance of success. Education has become so general that the community in which he will seek his clientele will easily detect his lack of general knowledge, and will very justly wonder how it is that an ignoramus happens to be a member of a learned profession. We believe that the time will soon come when no medical student will be permitted to matriculate who does not bring evidence, in the shape of degrees or certificates of a good general education, or who does not pass a satisfactory examination in, at least, English composition, latin, arithmetic, algebra and geometry—with a possible substitution of modern languages for geometry or algebra. There has been great laxity in regard to this matter of preliminary education, even in institutions that claim to have erected high standards of requirements. But we are convinced that all the best schools will soon fall into line and adopt a comparatively uniform list of requirements. Until this is done—and lived up to—we admit the difficulties in the way of our local schools doing very much more than they have done. If some of our millionaires would follow the example of Vanderbilt and others, and endow the chairs in our colleges, it would help greatly to simplify the solution of this question, and to aid in the cause of medical education in every way. Surely, if they would do in this way but a tithe of what has been done here by two members of our profession, there would be nothing left to be desired.

In conclusion, we would suggest the propriety of appointing to the Committee on Graduating Exercises, in the future, at least one member who shall be a resident of Los Angeles, in order that the affairs of the Medical College of that city may be properly represented.

O. O. BURGESS.
J. E. KUNKLER.
R. W. MURPHY.
GEO. J. BUCKNALL.

REPORT OF THE COMMITTEE

ON

OBSTETRICS.

By WALTER LINDLEY, M. D., Los Angeles, Cal., Chairman.

"MIDWIFERY WITHOUT ERGOT."

A short time since I heard a gentleman, who was rather young in the profession, remark that we could practice midwifery just as well without ergot, and it started me on a train of thought that caused me to compare the status of the use of ergot of to-day with the custom almost universal a decade ago.

By saying the use of ergot of to-day, I mean the use of it by progressive obstetricians. Ten years ago it was a very common practice to prescribe ergot liberally in all cases of inevitable abortion. It was also a practice to prescribe ergot almost indiscriminately in all cases of placenta previa. It was also the teaching of many of our obstetric professors and books on obstetrics, that ergot should be given in tardy labors when the os uteri was dilated, and to be given in all labors when the fetal head reached the perineum. I remember well how a certain professor, who had a very extensive practice in obstetrics, boasted that by thus giving ergot previous to the delivery of the head, all danger of post-partum hemorrhage was avoided. It was the common practice to give another dose of ergot after the child was born, and then to order it in pretty fair doses about once every six hours for a week or two to hasten involution.

Having been educated myself to this general idea of using ergot, I looked back over my professional work of the past ten years to see how I had gradually changed my line of practice in this respect, and recall the causes that led to this change.

THREATENED ABORTION.

It is my purpose in this paper to take up, one by one, the leading conditions considered suitable for the use of ergot in the past and give my methods of employing it, or not employing it, at present.

Formerly when I was called to a case of threatened abortion where there was considerable hemorrhage, I felt that abortion was inevitable and began at once the administration of ergot. I found to my surprise that a number of cases, even after taking ergot, and after they had lost considerable blood, failed to abort or miscarry; and that taught me that in certain cases of threatened abortion with hemorrhage where there was a slight separation of the placenta from the uterus, that moderate doses of ergot administered to the extent of causing some contraction of the uterine arteries, and yet not enough to produce violent contractions of the uterus, would control the hemorrhage; while small doses of opium would keep the patient quiet, and after keeping the woman in a horizontal position for a few days she would get up and go through her full term, and be delivered of a living child.

This has been my practice now for three or four years: when I am called to a case where there is slight hemorrhage, and slight pains, and almost no dilation of the os, I give fifteen to thirty drops of the fluid extract of ergot, and a small dose of morphine, with directions to repeat the ergot about every four hours, until all signs of hemorrhage have disappeared; and I do this with the expectation of preventing an abortion and not of encouraging it.

About two years ago, I was called to see a lady who was pregnant for the third time. She had carried one child to full term and aborted about the fifth month with the other. I found her apparently about four months advanced, having profuse hemorrhage, and an os dilated about the size of a quarter of a dollar. Following my usual plan, I gave her thirty drops of ergot and a quarter of a grain of morphia, which I ordered repeated every eight hours. The next day I found that the hemorrhage had entirely ceased, that the os was not quite as much dilated as on the day before, and that there were no pains whatever. This woman was up in a few days and went on for two months without any hemorrhage. She then flowed again considerably, and I again gave her the ergot and morphia. She now went on to full term and I delivered a living child; but to my surprise, after delivering a fair-sized living child, I found the mummified body of a fetus, apparently about three months old.

My opinion is that this was a case of twins, that for some cause one died when about three months old; that this dead

child acted as a foreign body, created contractions, caused some portion of the placenta to be separated from the walls of the uterus, and thus the hemorrhage was produced; that the administration of the ergot controlled this hemorrhage, while the morphia controlled the pains, and that thus, by the use of ergot and morphia, the woman went through her full term of pregnancy with this foreign body in her uterus.

Again, I was called a short time ago to a lady who was carrying her eighth child, and in about the beginning of the seventh month, she had quite a hemorrhage and some pains. I examined the uterus, found it slightly dilated and put her on the use of thirty drops of the fluid extract of ergot and an eighth of a grain of morphia; the ergot to be repeated every six hours, the morphia when necessary for pain, and the next day her hemorrhage was controlled and she went on to full term. At the close of the third stage, I examined the placenta and found a place on its mural surface where there were evidences of separation; this portion was about half the size of the palm of my hand. Here, I believe the placenta had become detached from some strain or possible blow, hemorrhage had begun, some pains accompanying it, and the ergot caused the contraction of the arteries, the hemorrhage ceased, morphia controlled the pain, and thus this woman was permitted to go on to full term.

These are but two cases of at least twenty that I have met with in my practice where the use of ergot has evidently been instrumental in preventing abortion or miscarriage.

Now, a word as to the use of ergot in

INEVITABLE ABORTION.

I believe it is a very common practice to-day among physicians, when called to a case of inevitable abortion, where there is considerable dilation and hemorrhage, to administer drachm doses of ergot almost indiscriminately. The query arises, why do this? What can be the advantage in a case where you wish to empty the uterus to give the remedy that will cause almost uniform tetanic contractions of that uterus and prevent the very object which you wish to accomplish? If you desire to gain time and go home for a night's rest, you might have reason for giving the ergot; but your patient would have a night of suffering, unless you combined the ergot with very liberal doses

of morphine, and you would probably have to begin in the morning where you left off the night before, if you were not called up at midnight to see the case; and your patient would be much more exhausted and less able to stand the operative interference that would then probably be necessary.

Instead of giving the ergot, I think it would be far wiser, where contraction and dilatation has advanced, to such an extent that abortion is inevitable, to immediately endeavor to rapidly dilate the mouth of the womb, by the finger or steel dilator, and empty the uterus of its contents.

After the removal of the fetus and placenta, I still fail to see where the use of ergot would be of advantage. Hot water irrigation, with advice to repeat in case of hemorrhage, and if there has been operative interference, to repeat at least twice a day for a few days after the evacuation of the contents of the womb, is a far better provision for the patient than frequently repeated teaspoonful doses of the fluid extract of ergot.

In labor, the use of this drug can, I believe, be employed solely on the dogmatic advice of Pajot; that is, never to use ergot until the womb is empty. I believe that there have been many children still-born from the teaspoonful of ergot given as the head reached the perineum. In my early years of practice, I can trace to my own satisfaction, or dissatisfaction, deaths of still-born babes to the use of ergot.

At the close of the third stage of labor it is certainly unnecessary to administer this medicine, or any medicine, in a normal case; but if there is post-partum hemorrhage, and we feel the hot blood gushing out over our hands and arms, and realize that our patient is rapidly losing all hold on life, it is a great satisfaction to have an assistant at hand to administer hypodermic injections of the fluid extract of ergot. Whether the advantage from the administration of ergot at such a time is real or traditional I am not ready to say, but that ergot alone can be relied upon in such a case I believe no physician here will assert.

I would much rather have a good firm pressure of my right [illegible] internally and my left hand externally than any number [illegible]ions of ergot, if I had to rely on either one or the

h rather depend on ice inserted by the hand than to have to depend on ergot alone. I her, far rather, depend on injections of hot

water, combined with frequently repeated external manipulations of the fundus, than on the use of ergot alone in post-partum hemorrhage. This being the case, I begin to realize what a small place in my confidence ergot holds as a controller of post-partum hemorrhage. Yet I would not be without it in such a case; I would not advise a young physician to go to a case without carrying his ergot with him. Professor Pajot is so earnest in his belief in the value of ergot in midwifery that he carries in his obstetric bag an ergot mill that enables him to powder the ergot on the spot, so that in the hour of need a strong preparation of the drug may be made in the patient's chamber.

In 1853 the Academy of Medicine in Paris adopted the conclusions of M. Depaul that, except in miscarriage, in certain labors attended with hemorrhage, and occasionally at the conclusion of natural labor, parturient women would be gainers by the complete disuse of ergot. This doctrine, emanating from such a prominent source, has been a long time permeating the professional ranks of America, and yet to-day it is almost abreast with the practice of the best obstetricians.

After post-partum hemorrhage is controlled, the question of subsequent administration of ergot to prevent relaxation arises. Here ergot is doubtless of some advantage, yet its use to the exclusion of the use of hot water injections and *massage* would be worse than the use of hot water injections and *massage* to the exclusion of ergot. It is of absolutely no use in hastening involution. Dr. Blanc has, according to the *London Medical Record*, recently carried out a hundred observations on the influence of ergotine on involution of the uterus, and he found that the process of involution did not take place more rapidly in women to whom ergotine was administered than in those left to nature. This conclusion is doubtless in harmony with the conclusion of every practitioner who has given the matter careful observation.

Finally I would lay down this law, that ergot should be used in midwifery only as a hemostatic, and its use as a hemostatic should be limited to the following conditions:

1st. In cases of threatened abortion it can be given in small doses to prevent abortion.

2d. In cases of inevitable abortion it may occasionally be used to delay the abortion.

3d. In cases of post-partum hemorrhage it may be used

at the time of the hemorrhage and for two or three days thereafter.

4th. It may be used hypodermically, after the removal of the placenta in Cæsarian section.

That there are other remedies which might well supplant ergot, even in these conditions, I have no doubt. Chief among these are gosyppium, hamamelis and hydrastis. Yet I never believe in discarding an old and long-used drug for a new one unless I see that the new one presents points of decided superiority. That either of these medicines mentioned have any advantage over ergot has not been proven to my satisfaction.

In conclusion, I would advise the young practitioner who said that he could practice midwifery without ergot not to attempt to carry out his intention in that direction; but rather to walk in the footsteps of those who have had an abundance of experience, and who can better judge than he as to what medicines should be omitted from the obstetric bag.

DISCUSSION ON REPORT ON OBSTETRICS.

Dr. W. A. Briggs of Sacramento, in opening the discussion, said that not more than 50 years ago, a celebrated surgeon arose before the British Medical Association and exclaimed: "Thank God I know nothing of obstetrics." The retort was as keen as the exclamation: "If the gentleman is thankful for his ignorance, he has much to be thankful for." He referred to this simply to show the position of obstetrics to-day, as compared with its position 50 years ago; an advance that must be grateful to us all. Pajot, as Dr. Lindley has stated, as well as Charpentier, discard ergot before the uterus is empty. Many of our own obstetricians do the same. One thing he regards as of extreme importance, because it confirms the conclusions naturally derived from our knowledge of the immediate action of ergot, and that is the result of the clinical studies made by [illegible] and Ganzanotti, in regard to the influence of ergot in [illegible] has experimented on 31 cases. He [illegible] g the lying-in period, and found that [illegible] ergot really hinders it. Blanc [illegible] he administered ergot regu- [illegible] l-bed. From 40 others of

the series he withheld ergot. To twelve others he administered ergot for 10 days, and he found that in this series the uterus had attained a measurably greater involution in the 40 cases in which ergot had been withheld than in the 40 cases to which it had been administered for five days; and in these even a measurably greater involution than in the 12 cases to which ergot was given during the full ten days of the lying-in period. This is in accord with the clinical observations of such men as Pajot, Charpentier, Goodman, Reamy and numerous others, whose names are perfectly familiar to us all. He was fully in accord with the principle laid down in the report of Dr. Lindley, with the possible exception of the use of ergot in abortion. It had been his habit not to administer ergot in abortion at all. The chief objection to its use in this condition is that it is so very likely to imprison the fetus within the uterus. There are other subjects within the scope of this committee, which the Chairman has left to other members, one of whom he believed would present a report on Electricity in Obstetrics. There is one point which seemed to him of the utmost importance, and that is antisepsis in labor. He believed the greatest progress in obstetrics within the last year had been accomplished in this direction; and as one who has strenuously advocated antisepsis not only in labor, but in surgery generally, he must confess to great satisfaction in the remarks made in his Birmingham address by that arch opponent of antisepsis, Mr. Lawson Tait, who there confessed and asserted that it is the duty of every obstetrician to adopt antisepsis in labor. A very seductive term has been invented by those who, it seemed to him, want to get back into the fold without climbing the fence, and that is the word asepsis. The object of antisepsis is asepsis. If the believer in antisepsis is certain of asepsis, his object is attained. But those who talk so much about asepsis employ antiseptics for accomplishing their purpose for disinfecting, or, as they might say, "cleansing" their sponges, their hands, their instruments and even their patients. It seemed to him that this is rather quibbling, and that in obstetrics, as in surgery, we should adopt a strict antisepsis. Let us have asepsis *via* antisepsis.

ELECTRICITY IN OBSTETRICS.

By Dr. MARY W. MOODY, San Francisco.

Of late, increased attention has been given by the medical profession to the use of electricity, as one of the means employed for the treatment and cure of disease. The favorable results obtained by it in other branches of medicine are well established, and a glance at the present medical literature shows that its use in obstetric practice promises to be as fruitful of good results as that obtained by it in gynecology. It is claimed by those entitled to consideration, to have advantage over other methods now employed in certain of the complications of labor. If this be true, then in view of the fact that, in some emergencies, even the most reliable means may fail, it should receive a welcome at our hands. The conditions in which it has been used successfully may be mentioned: Feeble uterine contractions appearing at any stage of labor; post-partum hemorrhage; conditions requiring the induction of premature labor ; Rigid os, and in the treatment of extra-uterine pregnancy. In treating the above conditions, electricity may be used for its stimulating, sedative and chemical effects. Its stimulating effects are illustrated by its power to produce contraction of muscular tissue, either by a direct application to the muscle, or, by stimulating the motor nerves supplying it.

"No matter where the muscle be situated, provided it can be reached by the galvanic, or faradic current, especially the latter, contraction will follow." (Poor.) In accordance with this well established physiological fact, uterine hemorrhage may be controlled by stimulating the motor nerves supplying the uterus, which causes it to contract, there by closing the open mouths of the bleeding vessels. Also its effect on the vaso-motor nerves is to cause contraction of the muscular fibers of the blood vessels supplied by them, thus producing constriction in the arterioles and capillaries, which constitutes an important factor in controlling hemorrhage.

The above facts have been proven clinically by the powerful contractions produced in the uterus and arrest of the hemorrhage [illegible] cases of this accident succeeding to delivery.

Dr. W. J. Kilner, of New York, electrician to St. Thomas' Hospital, has made a study of the effects of faradism in many cases of labor. He and others claim the value of electricity is not alone confined to its power to evoke or increase the force of uterine contractions, but uses it during the continuance of contractions to relieve pain. Baird, who has used electricity in midwifery practice for years, states: "I have never known or had reported to me a case where it failed to afford all the relief demanded by the patient." Many report favorably of its use in the first stage of labor. When the cervix is tense and rigid and the contractions occasion acute suffering, especially where they recur with little or no interval between and are very exhausting to the patient, the faradic current proves valuable both as a means to relieve pain and favor more rapid dilatation of the cervix. Also in the second stage, when the pains become inefficient and lose their expulsive character due to exhausted nerve force, the use of a mild fardic current, one electrode held by the patient, the other moved over the abdomen, relieves the patient of exhaustion and re-establishes uterine contractions.

Dr. A. Murray, of New York city, has treated eighty-two cases of uterine inertia in the second stage of labor by external faradization and always with good results. In the treatment of post-partum hemorrhage we have abundant testimony in favor of its use. The following from Lusk: "Probably the faradic current is the most efficient agent in securing contractions of the uterus in post-partum hemorrhage; one electrode introduced into the uterus, the other applied directly over the fundus, or both poles applied directly over the uterus through the abdominal walls."

Barthalow says: "Remarkable results have been obtained by its use in cases of retained placenta and post-partum hemorrhage." He advises that one electrode of a faradic battery be introduced into the womb, the other placed on the hypogastriumand adds: "This is a more certain and scientific expediment, and also a greatly more expeditious one than the use of ergot." He cites a case in which hemorrhage after abortion persisted "in spite of all the remedies used, but ceased permanently after the application of faradism."

Dr. Grandin, obstetric surgeon to the New York Maternity Hospital, also recommends the faradic current in the treatment of post-partum hemorrhage. The interrupted current has been

used with flattering results in cases requiring the induction of premature labor.

Says Grandin: "The recent contributions from Bayer, Fleischman and others, would lead us to believe that in the electric current we possess a most valuable means of inducing premature labor, and believe that this agent will prove most effective and the least dangerous; seeing that uterine contractions can, with absolute certainty, be evoked and with not the slightest risk of septic infection or damage to the cervix or uterus." In further support, Dr. Baird gives his experience in inducing labor in cases of placenta previa by use of the faradic current, as follows: "For the induction of premature labor, I was first induced to give it a trial in a case of placenta previa, labor occurring between the sixth and seventh months of gestation, in which the patient was rapidly becoming exhausted from profuse hemorrhage. Being successful in this first experiment, I have used it since in four cases of placenta previa." He reports his fourth case as follows: "Mrs. M., age 21, Primipara, was attacked with a profuse hemorrhage between the eighth and ninth months of gestation. Upon my arrival I found she was having feeble labor pains, the vertex presenting, the os sufficiently dilated to readily admit my index finger; the placenta was over the internal os and blood flowing freely in the interval between the pains. I immediately applied the faradic current, which at once brought on vigorous uterine contractions, and the hemorrhage entirely ceased. The labor was terminated in three and a half hours without any further hemorrhage."

In the treatment of ectopic gestation, electricity has been used with absolute success. The following is from Barthalow in his late work, "Medical Electricity:" "The remarkable results that have been achieved by electrical treatment in the relief of extra uterine pregnancy is one of the most satisfactory in the whole range of electro-therapeutics."

Thomas of New York, says: "The growing triumphs of abdominal surgery are apt to lead to the conviction that laparotomy should, as a rule, be the procedure of election in these cases." From this view, I unqualifiedly dissent. "For the reason," says Grandin, "that he, in conjunction with Lusk, Munde, Goodall, Garrigans, Rockwell, and a host of other distinguished gentlemen, know of a safer and just as effective method, which we now consider as the one, par excellence, in

the treatment of tubal pregnancy, prior to the fourth, perhaps the fifth month of gestation, namely, electricity." This method, when compared with all the others, is seen to be absolutely free from danger. It has proved successful in every case where it has been tried. Thomas has had over six cases, and all cases included amount to nearly forty. A further advantage of this method is that in case of an error in diagnosis, *it can do no possible harm.* The method is applicable in every form of ectopic gestation prior to the middle or end of the fourth month and prior to the rupture of the cyst. It has been claimed against this method, that it is likely to cause rupture of the cyst. Our best answer to this objection is, that rupture has never been produced. He continues: "Up to the present, the use of electricity in early ectopic gestation, has been almost limited to the United States. It is safe to predict, however, that electricity will yet become the only method of treatment of ectopic gestation prior to rupture of the cyst; and through this means the dreadful mortality from gestation of this nature will be reduced by fully three-quarters.

Baird, who has used electricity in obstetrics to a greater extent than any one in this country, claims that this agent stands unrivaled as an oxytocic. In his hands it has subserved the following purposes: 1st. To modify the pains of labor. 2d. To favor more rapid dilatation of the os. 3rd. To promote more vigorous uterine contractions. 4th. To add tone and strength to all the muscles engaged and increase their power of doing work. 5th. To abridge the time occupied by the labor. 6th. To prevent shock, exhaustion and post-partum hemorrhage. 7th. To insure contraction of the uterus in cases of instrumental delivery. 8th. To act as an auxiliary in the induction of premature labor. 9th. To arrest hemorrhage and accelerate labor in cases of placenta previa. 10th. To prevent an undue expenditure of nervous force in all cases of debility from whatever cause, thus leaving the patient in a condition to secure a speedy and favorable convalescence. The faradic current is best adapted to the requirements of obstetric practice, except in the treatment of ectopic gestation. In this condition the galvanic current is given the preference by many, although both currents have been used successfully. The galvanic current has more decided chemical action, passes through the tissues more certainly and must be more fatal to fœtal life.

In conclusion, I give the following from Hyne's Electro-therapeutics: "Faradism is a marvelous therapeutic agent in obstetrics, simple in application, rapid and energetic in action, perfectly harmless;" and always under the control of the operator.

REPORT OF THE COMMITTEE
UPON
MEDICAL EDUCATION.

By J. P. WIDNEY, A. M., M. D., Los Angeles, Chairman.

To a thorough understanding of the methods of the system of medical education of to-day it is necessary that one should know somewhat of its manner of growth, and this involves a review of the history of the medical education of the past; for the present is in many respects an outgrowth of that past; and many things which may seem odd, or strange in our present methods, are only the survival of methods which at the time when they originated, were not odd or strange, but were the natural offspring of the needs and the educational crudity of the times It is to be borne in mind also that in so ancient a science as that of medicine, many of the methods of the past would necessarily come down to us; and even when practically antiquated, be slowly eliminated or changed. In this respect medicine simply shares the fate of other branches of human knowledge, for all imperfect or defective methods are apt to be slowly set aside. It is a part of the conservatism of the human mind: not necessarily an evil thing in itself, only an evil when carried to excess, and allowed to become a clog to progress.

It may be laid down as a rule that the methods of instruction will be shaped largely by the facilities which exist. In considering medical education of the earlier ages, several points may be noted in which the facilities then available differed radically from those of our own times. Among these may be enumerated:—The original entire lack of books, except the few treasured manuscripts of antiquity, laboriously written out by hand, and found only at a few great centers of mental activity;

and the utter impossibility of students, gaining free access to these, or of the practitioner carrying them away with him:—then in the ages which immediately followed the discovery of the art of printing, the extreme scarcity of printed books; their high price; the few writers upon medical topics; the incomplete manner in which they represented the field of medicine as even then known, and the long intervals between publications;—also may be mentioned what might be designated as the oral habit of thought, the habit of learning through the ear rather than through the eye, a habit which even now is common to races and individuals who read little, or not at all;—then too, the lack of competent teachers except in the few large cities;—also may be cited the lack of clinical facilities except at a very few centers, and their crudeness and inadequacy even there, for the great general and special hospitals of the present day, scattered all over the land in every city, were then unknown, except upon a limited scale in a few of the leading cities of the world;—finally may be mentioned the infancy and consequent unavailability of collateral sciences, as chemistry and botany.

RESULTS.

As results of the foregoing causes may be enumerated:

The gathering of students into a few great centers where lectures to large classes might take the place of books which were not to be had.

The note system, by which method the student kept a written record of the substance of each lecture, and these notes became to him, as he went out to the practice of medicine, his library and his guide.

A tendency, because of the lack of clinical material and its study, and also because of the slight assistance to be gained from collateral sciences, to base theories of disease upon mere abstract speculation, rather than upon a foundation of collated and digested clinical facts.

EVILS ARISING FROM THE SYSTEM.

As evils which were necessarily incident to the system may be enumerated: The unwieldiness of the great classes, and the unavoidable lack of that personal supervision and instruction which the student, especially in his first few years, must have in order to profit fairly from his course of study. The broken

and divided attention to the substance of the lecture which the necessity of note taking involved. The undue and unhealthful influence upon the minds of classes wielded by lecturers with hobbies, and a tendency to the building up of dogmatic and narrow schools of medicine by lecturers of strong personality, schools moulded and shaped by their peculiar notions, and which by the warping influence of preconceived theories blinded men to the teachings of clinical medicine and checked the developments of that broad catholicity which should belong to a liberal and progressive science. Also may be mentioned the lack of clinical and laboratory work, the graduates becoming abstract theorists upon disease, rather than practically trained physicians.

CHANGES WHICH HAVE COME IN THE FACILITIES AND MATERIAL FOR MEDICAL EDUCATION.

Under this heading may be enumerated: An abundant supply of books at reasonable cost, and upon every conceivable topic of medical interest, and books which, by their repeated issues, are all the while fully abreast of the latest phase of medical thought and medical practice. The reading habit of mind among the masses, so that students learn even more readily by the eye than the ear. The multiplication of well educated men, until every city of reasonable size has within it men fairly competent to teach for at least the earlier years of a medical course. The multiplication of hospitals until every city of moderate size affords material for fair clinical study. The development of collateral sciences, and the multiplication of men competent to teach them.

To what extent have these changes in the facilities for medical education been followed, and to what extent failed of being followed, by corresponding changes in its methods?

In answer may be stated: The lecture system remains much as it was centuries ago, when it was a necessity. The system of taking notes remains much the same as when the student could not hope to have books. The tendency still is to the [illegible] f students in large classes and the lecture system [illegible] principal feature of medical education [illegible] ry work occupies even yet a secondary [illegible] while the surroundings, the material

for medical education, have radically changed within the last few centuries, its methods have not undergone a corresponding change to anything like the same extent; and we are still perpetuating the evils which were incident to the defective facilities of the earlier ages, viz.:—large classes, notes, and the undue prominence of the lecture system as compared with clinical and laboratory work; only, the moulding influence of the lecturer is now to some extent restricted by the freer use of books among students.

WHY ARE THESE THINGS EVILS?

The large class is an evil, because the individuality of the student is lost in the aggregated numbers. He must necessarily remain, with the exception of a favored few, personally unknown to his teachers, and lose the benefit of that personal supervision which is of so much value to the beginner.

The lecture system may, and generally does, become an evil, because a large portion of each day is consumed in listening to mere verbal repetitions of matter which is accessible to the student in carefully prepared form in books; and because with the reading habits of the modern man, that which is read is better apprehended and better remembered than that which is heard.

The note system is an evil because it distracts the attention of the student from the thread of reasoning, while he is engaged in writing, and gives him necessarily a broken and disjointed idea of the matter lectured upon; while as a written book for after reference or study notes are now superseded by the printed volumes which are no longer beyond the means of the student.

Apart from the direct evils of the present system, is a waste of resources in attempting in the one school the work of taking the primary classes in medicine and also the higher classes. In Colleges of Letters this is not done. A wiser conservation of resources is shown by throwing the burden of preliminary work upon high schools and academies, which with cheaper appliances and less cost do the work equally as well, the college receiving the students when already well advanced in natural sciences and languages, and giving to them simply the finishing touches of a higher education. In this way the more expensive plant of the college is not wasted in the labor of teaching primary classes; nor is its work cumbered by the unwieldy masses of wholly untrained students.

Under the practical workings of the present system the higher medical education is virtually untouched and unattempted in the greater number of medical schools of the country.

WHAT CHANGES MIGHT BE SUGGESTED TO MEET AND REMOVE THESE EVILS?

The changes which have presented themselves to my mind are these. Multiply schools of medicine, encouraging their establishment in all cities which can offer fair clinical facilities; but fix by law a standard of requirements. Require of them a three years' graded course, carried out in good faith, and covering certain specified branches of medical study. Let these schools, however, only have the right to graduate with the degree of Bachelor of Medicine, the degree not carrying with it the right to practice medicine. Then establish in each state by law, and as a part of the state university, one central school, with a corps of teachers drawing their salary solely from the state, and in no way dependent upon the fees received from students.

Let this school be supplied with all the expensive and varied appliances for the highest medical education, and locate it in some large city where access may be had for clinical purposes to the hundreds of varied cases of great central hospitals. To this state school let no students be admitted who do not come already possessing the degree of Bachelor of Medicine; and give to them a fourth year of finishing studies corresponding somewhat to a post-graduate course. Then let these students if they pass their final examinations in this school receive from the state university the degree of Doctor of Medicine with the right to enter upon practice; and let no diploma not so emanating within that state be accorded legal recognition; and let no person be permitted to practice medicine within the state who does not possess such diplama from the state, or whatever may be decided by law to be its equivalent from other states, or from abroad; and in case of doubt or question, or dispute, let such person be required to take this final year, and pass his examinations, and then receive a diploma from the state, before permission to enter upon practice is accorded.

'IAT WILL BE ACCOMPLISHED BY THIS?

'e classes in earlier years of a medical
s students will take their earlier years

of study and receive their degree of Bachelor of Medicine in some one of the colleges to be found in each large city.

It may be said that colleges would not be so multiplied to do this preliminary work. The whole tendency of modern medical education shows, however, that such schools would be established in sufficient numbers, especially when freed from the necessity of attempting to provide the costly appliances needed for the higher medical education. The change from the large classes of many of our present schools would permit of a change also from our present lecture system to a more direct method of teaching, in which the text-book, and personal instruction would do better work, supplemented by a modified and less formal lecture course. Under the more direct instruction of this plan the note system also would quickly disappear. The student would also find in the more limited number of clinical cases presented to him, less confusion; would not be overwhelmed with the mass of material, and would thus study to better advantage. It is no advantage to the raw student to walk the wards of an hospital of hundreds of beds; on the contrary it is a positive disadvantage. He is simply confused, as he has not yet the maturity of training to select and digest.

Another advantage of the smaller class is the fact that each student has a better opportunity to personally inspect and study the clinical cases, and the surgical operations, not being forced, as in some of our large schools, to make use of an opera glass, if he would see.

Second.—An economy of money and of material; as under this system the costly appliances needed for the advanced years will only have to be purchased for one college in each state, and by reason of this fact the stock in that one school may be made so much the more complete and extensive. Each state would thus have it in its power to furnish advantages for the higher medical education such as can now only be found in a few of the great government universities of Europe.

Third.—The student receiving the personal supervision which would be possible in the many colleges with their smaller classes, would by the time he had gained his degree of Bachelor of Medicine, and gone for his fourth year to the State University, be fitted to continue his studies profitably in the larger classes which would there be gathered, without the close personal instruction and supervision so needful in the

earlier years of his course, and would be prepared to understand and profit by the higher advantages there offered.

He would also be by this time prepared to profit by the greater mass of clinical material presented for his inspection, instead of being, as would have been the case in his earlier years, simply confused and overwhelmed by it.

Fourth.—The establishment of one common standard of medical education in the state, and that of a high grade; thus forcing out of existence the low grade cheap schools, which now are a curse to the profession of medicine over so large a portion of our country; while the knowledge of the fact that their graduates must stand side by side with the graduates of all the other schools of the state in that final year, and in a test before a disinterested tribunal, would be a constant spur to each college to do the best possible preparatory work.

Fifth.—The fact that the professors in the state school received their salaries from the state, and not from the fees obtained from the students, would free them from any possible incentive to graduate large but defectively trained classes because of pecuniary interest.

Among benefits arising to the profession at large from the workings of the plan may be enumerated:

First.—The elevating effect upon the practitioners of the state which the establishment of these schools at the various points would have. Every such school would become a local center for an increased mental activity in the ranks of the profession in its vicinity, the constant study which the work of teaching necessitated in the corps of professors making them a competitive spur to others of the profession about them. This would be far from the least of the benefits arising from the system.

Second.—The higher standing accorded to our graduates abroad. A diploma thus issued upon a fixed and recognized basis, and carrying with it the seal of the state as a voucher for the thoroughness of the work done by the holder before receiving it, would command a recognition such as the diplomas of many, and abroad comparatively unknown schools, cannot claim.

HOW WOULD THIS PLAN DEAL WITH THE SO-CALLED SCHOOLS OF MEDICINE?

In this way, the only point upon which these schools base their claims for recognition is upon some peculiarity in the use of drugs.

This leaves the great fields of anatomy, physiology, chemistry, pathology, surgery, obstetrics, and in fact the whole range of medical science except therapeutics, unquestioned even by the schools which teach what to us seem unsound views in medical treatment. Let the state then by law grant the right to confer the degree of Bachelor of Medicine to all schools teaching in good faith the branches which have been enumerated, together with such others as may be designated, requiring a three years course of a specified number of months each year, and certain clinical facilities. Let the graduates of that school, whatever may be the peculiar views held upon points of therapeutics, have the right to enter the State University for their final year, and if they can pass the examinations let them be graduated with the degree of Doctor of Medicine, this degree carrying with it the right to practice medicine. With this enforced high standard of education the question of therapeutics may safely be left to settle itself. The important point is to see to it that every practitioner of medicine shall be an educated man. There will be no more speedy way of putting an end to unsound views upon such points than to give to the student a thorough training in the great underlying principles of disease, its causation, its phenomena, and its pathological results in the human body. The men who have been thoroughly trained in these points may, as a general thing, be safely left to judge of principles of practice. I believe that the safest, the best, the most speedy, and in fact the only way to put an end to narrow and unsound views upon therapeutics, and to schools which may be based upon them, is not outlawry but education.

AS THERE WOULD BE CONFLICTING CLAIMS FROM IRREGULAR SCHOOLS, HOW SHALL THE CHAIRS OF SUCH A STATE SCHOOL BE FILLED?

I should have no hesitation in allowing every so-called school of medicine, which could show a clear record of colleges conforming in good faith to the requirements of the law in a three years graded course, having the required number of months of

school work, the specified branches taught, and dissecting and clinical facilities up to the fixed standard, and utilized in good faith. I should have no hesitation in allowing to each such school proper representation in the professorships of the state school; but I believe this question would cease to be a vital one within a very few years, as I think under the higher education brought about by this course distinctive schools of practice would soon disappear from view. They would be educated out of existence. And if any individual should continued to hold odd views upon these points, he would hold them simply as an individual, not as one of a school or an organization.

A great and final gain to the whole profession by the adoption of this common system of education and its establishment by law, would be the possibility of enforcing medical legislation against quackery in all its forms, which would result.

The argument now brought to bear successfully upon the public against such enforcement of law is that it is only a quarrel of schools, and that it is persecution.

When we are able to meet this assertion with the counter statement that the law recognizes no schools, but *has* provided that the man, who takes human life into his hands, shall at least understand the workings of the human body and of its diseases, and has enforced a common test of fitness; then the cry of schools, and persecution, fails of its effect, and law can be enforced. It is the surest, and it seems to me the only way of putting the profession of medicine in a proper light before the public.

The plan, which I have outlined in this paper, may be in advance of the times. I believe it, however, to be feasible. And more. I believe that it is in this line that the solution of the many perplexing questions of the relationship of the profession of medicine to the public and to the various schools of medicine, is to be found. And I believe that to some such plan as this we shall, possibly slowly, but as surely, come.

REPORT OF THE COMMITTEE

ON

INDIGENOUS BOTANY, ETC.

By W. P. GIBBONS, M. D., Chairman, Alameda.

Lindley describes the Natural System of Botany as being so founded "that the affinities of plants may be determined by a consideration of all the points of resemblance between their various parts, properties, and qualities; and that thence an arrangement may be deduced in which those species may be placed next to each other, which have the greatest degree of relationship."

If this proposition were strictly correct, there would be no difficulty on the part of the physician, in appreciating the medical properties of every species of plant, by referring to its natural order. But there is a vast amount of work yet to be performed, before the proposition can be realized. In structure, orders and species run into each other by almost imperceptible gradations. In physiology, though much has been demonstrated, there yet remain problems to be solved, which may thwart the efforts of the best scientists.

Why is it, that apparently in the same kind of cell structure, *atropin* should be produced in one plant; *veratrum* in another; *saponin* in a third, and so on, each species, under the same environments, producing a different active property? It is a question that cannot be answered, and in considering the claim of each natural order, to include plants of similar medical properties, we will see that it cannot be regarded as a strict or general rule. In illustration take the natural order,

SOLANACEÆ,

which includes a large and wide-spread number of genera, in Europe, Asia and America. Among them are some of the most virulent narcotic poisons; some of the most important articles of food. The potato, tomato, the physalis or ground cherry, capsicum, belladona, stramonium, nicotiana, and many others are here grouped. The medical type of the order is *Atropa belladona*, a plant not indigenous to California, and containing the alkaloid *atropin*. *Datura*, or Stramonium, is represented on the Pacific side by the *D. Meteloides*, and by the section *Brugmansia*, the latter a South American genus, now

naturalized in our gardens, which bears large trumpet-shaped, pendulous flowers, which perfume the air within a large area of its growth. Their alkaloid, *daturin*, is conceded to be identical in composition and therapeutic action, with *atropin*. A limited experience with both these plants, gives encouragement that they may be usefully appropriated in medicine.

Leaves of the Brugmansia, applied over the abdomen in a case of peritonitis, allayed pain, and produced mydriasis in fifteen minutes.

Among the numerous species of the genus Solanum pertaining to California there are some of decided qualities. There is but one which is officinal; S. *dulcamara* or bitter-sweet. S. *Nigrum* was officinal in the pharmacopœia of Schroderi in 1565, and was described by Cordus. It was used externally in erysipelas, in headache and to mitigate fever. The active principle of the genus is *solanine*. In California the S. *umbelliferum*, Esch., is widely diffused. Though five species are found in the state, this is the only one, which merits attention. Extra limital species are probably more important, as possessing more active properties. The S. *verbascifolium* or mullein leaved solanum—probably a Mexican or S. A. species, is found sparingly naturalized in our gardens. It is from 8 to 10 inches in diameter in the trunk, with a height of twenty feet and a spread of about twelve feet. There is no doubt of its active properties; and it commends itself on account of its large leaves, which, applied externally, relieves pain.

Of *nicotiana* or tobacco, there are three species indigenous to California. The active principle of the plant is *nicotin* and an empyrematic oil; the former being a poisonous alkaloid. The plant is appropriated to uses which cannot be commended. Especially has the practice of smoking in early youth a marked effect before and immediately succeeding puberty. "More than anything, except drinking, it hinders the growth and development of the higher nervous centres, and both intellect and moral character are capable of being most seriously damaged by this depressing agency continually exerted, during the developmental period." In addition to this it impairs the whole process of consolidation of the bodily frame. *

The names of some important plants which are not indigenous to California, have been here introduced as standards of com-

*Phillips' Mat. Med.

parison, and to show that the theory, that members of the same natural order possess similar medical properties, cannot be relied on in practice. Thus in the *solanaceæ* there are belladona and stramonium, having the alkaloids atropin and daturin, which are identical in constitution, and probably in medical action. To these may be added Brugmansia, possessing undoubted properties as a narcotic and midriatic, but which has not, to the writer's knowledge, been subjected to chemical and therapeutic tests.

Thus, if we refer to the well known physiological and therapeutical action of these drugs, it will be seen that it is not a proper theory to assign common medical properties to all plants of the same natural order. The theory originated more than fifty years ago, when in many respects, the knowledge of vegetable therapeutics was comparatively limited. Some brief remarks will now be made on the natural order

LILIACEÆ.

California is largely represented here, both in its own and foreign species; in ornamental as in medicinal plants. Twenty-three genera and species are recognized as indigenous to the Pacific coast. No common property has been ascribed to members of the order. Most of the genera contain much mucilage and an acrid principle, which is dissipated in many cases by heat and water. Many members of the order are used as food in different parts of the world. The bulbs of the lilium pomponium are roasted and eaten in Kamschatca, where it is cultivated and takes the place of the potato. Many California species are used by Indians, who prepare them for winter food, by means of heat and maceration; otherwise they would be regarded as poisonous.

This acrid principle, so marked in numerous cases as a virulent poison, prevails in some plants outside of this order. Thus, in *Æsculus*, or Buckeye, of the natural order Sapindaceæ, the bitter principle, is referred to *æsculin*, which renders the fruit very unpalatable, if not dangerous; Indians remove this by heat and maceration, and class the fecula among their articles of food; though it is not a favorite, as they use it only when scarcity of other plants occurs. A more marked illustration is in a plant foreign to the Pacific coast, the *Jathropa manihots*, Willd., belonging to the natural order, Euphorbiaceæ, from the root of which tapioca is obtained. Taken raw, it is a virulent

poison. Henry and Charlan refer this principle to hydrocyanic acid* Years ago, slaves in West India islands frequently used the root when they wished to commit suicide.

Every means were tried among the planters to abate this practice, without success. Ultimately a planter who had lost several slaves in this manner, ordered his overseer to apply the lash to every one who might be detected in eating the poison. An opportunity occurring, he applied his whip to the unfortunate man who ran about the plantation, followed by the overseer, to escape as much as possible, the unpleasant castigation. He ultimately fell down exhausted. The extraordinary degree of stimulation and exercise, saved his life, and the cat-o'-nine henceforth became the successful antidote to this poison.

Chlorogallum pomeridianum, Kunth, the soap plant of California, is generally diffused over the state. Its bulbs vary in size, from one to four inches. They have an acrid taste and contain a large amount of mucus, which has detergent properties,—hence its common name; it is used by Indians in washing their clothes, when they have any. It is said that the water which flows from a spring into the stream, after being charged with this mucus, kills fishes. The active principle of the plant is probably *saponin*. The medical properties of the plant are unknown.

Trillium, Lin., or wake robin, has numerous American species, of which *T. sessile* Lin. and *T. ovatum* Pursh, are common in Cal. They are among the first spring flowers, growing in woods and shady places, and are attractive by their purple and white petals, growing on a three-leaved calyx below which are the three large leaves of the plant. The root, which is the officinal part, is commonly tuberous and oblong, has an acrid taste, and it produces salivation. It has been regarded as valuable in domestic medicine, and has been recommended by members of the profession in hæmorrhages. In form of a poultice it has been usefully employed in indolent or putrid ulcers. Its active principle is supposed to be *saponin*.

Of *Veratrum*, Tourn. there are two species in the state, the *V. Californicum*, Durand, and the *V. fimbriatum* of Gray, besides the officinal species V. *viride* Ait. Lemery states that the generic name of the plant is so-called because its root is *vera atrum*—truly black. It has always been regarded as a viru-

* Journal de Pharm. xxii. 119.

lent poison, and it has several alkaloids. The California species are widely spread over the Sierra and Coast ranges. Phillips sums up the virtues of the *viride* as an antipyretic, useful in acute rheumatism; decidedly so in pneumonia. He recommends great caution in administering it.

Camassia, Lind., is an American genus of two species, both found in California. The *C. esculenta*, Lind., is our species; the *C. Fraseri*, Tor.* belonging to the Eastern States. The Indians call it *Quamash*; and the first named species is used by them as food; the other is reputed to be poisonous. It is among the first bloomers of the season, and its racemes of white flowers present a beautiful appearance, on our rugged hillsides. It is allied to the Scilla or squills, in which genus it was formerly placed. Nothing is known respecting its medicinal properties.

Scilla is an old European genus; it was used in medicine more than three hundred years ago, for the same diseases for which it is now administered. The two species, one bearing red, the other white flowers are naturalized, and have become attractive additions to our flower gardens.

The result of this brief essay indicates the following points:—

In natural order *Solanaceæ*, among California and introduced species, the following are worthy of experimental examination:

Datura Metaloides, *Brugmansia suaveolens*, Willd., both possessing the active properties of Atropia.

Solanum Umbelliferum, S. *nigrum*, S. *Verbascifolium*, possessing the active properties of Solanine. The last, in all probability, containing the alkaloid in large quantity.

In natural order Liliaceæ, *Trillium sessile* and *T. ovatum*, *Chlorogalum pomeriadum*, *Camassia Fraseri*, probably containing the active principle, *saponin*. Veratrum Californica, and *fimbriatum*.

The tenor of this paper will show how much more work is to be performed, before we can attain to a correct knowledge of the therapeutic value of our indigenous flora. The same may be said of many plants which have gained an officinal reputation, and are daily prescribed in the practice of medicine.

In illustration, a single genus of the natural order *Rhamnaceæ* may be referred to—*Rhamnus* or buckthorn.

Rhamnus cathartica, was described by Caspar Bauhen in the

* This is a doubtful species in California.

first edition of his work, *Pinax Theatri Botanici*, 1596.* It is officinal in Schroeder's Pharmacopœia in 1675. It had several synonyms, among which was *spina infectoria*, now *R. infectoria*. It was used as a hydrogogue cathartic, was prescribed in dropsy and rheumatism. The dose of fresh berries was 10 to 20; of dried berries 60 to 90; for decoction from 40 to 60.

In Hooker's Medical Dictionary, 1838, the synonyms, the properties and the doses of the Rhamnus are described almost verbatim from Schroeder's work, which doubtlessly served the author of the dictionary as a text-book. In the last edition of the United States Dispensatory, the plant is officinal, and its properties and modes of administration, are defined much after the above formula. In point of fact, nothing new has ever been discovered in its physiological action or therapeutic properties, within 300 years. True, scientific pharmacists have worked out its ultimate analysis.

Among notices of unofficinal plants contained in United States dispensatory, is one of *Cascara sagrada*—two Spanish words signifying sacred bark. This is the *Rhamnus Purshiana DC.* one of three species of the order belonging to California, the others being *R. Californica*, Esch., and the *R. croceus*, Nut.

This genus was the subject of remarks by our late distinguished California botanist, Dr. A. Kellogg, in 1854, before the California Academy of Sciences, and its medical properties were discussed by several physicians who were present; and they were considered to be identical with R. cathartica. But of more recent years, there has been a premium on the discovery of new remedies. The buckthorn of 300 years ago, got baptized by a new name, and extraordinary qualities were attributed to it; the most prominent was that of being a specific for constipation. As a new remedy, prepared in attractive form, it has had a boom. As an old remedy, familiar as household words a dozen generations ago, it has been neglected, if not forgotten. The officinal preparation, Extractum Frangula Fluidum, United States and the "new remedy," fluid extract of cascara sagrada are identical in medicinal properties.

The medical history of the Rhamnus has parallels in many other so-called new remedies. There are errors to be corrected in the literature of numerous plants, which have come into use without that rigid investigation of physiological action and of

*Botanicus Univeralis, Weston, London, 1777. Schroeder's Pharmaco-

chemical and medical properties, which are required in the present advanced stage of medical science. There are comparisons to be made between plants having similar properties; that those having inferior value may be discarded, or used only as secondary drugs. There are authoritative tests to be established, by which the claim of every new remedy shall be submitted to crucial examination before being placed in the ranks of a reliable drug.

Until these propositions are resolved into a permanent system, the medical profession will be subject to annoyances arising from a constant increase of new preparations to which no reliable value can be ascribed.

REMARKS BY DR. M. M. CHIPMAN ON THE REPORT OF DR. WM. P. GIBBONS ON THE "INDIGENOUS BOTANY OF CALIFORNIA:"

Mr. President, and Members of the Society:

The history of this state shows how rapidly the miner improved upon the first crude methods of obtaining the precious metals, and how soon the farmer, incited by the prospect of large remuneration for his labor, tested the capacity of the soil, in the cultivation of such articles of husbandry, as were in most common demand; but there were hidden possibilities within this hitherto terra incognita, which the freshly arrived immigrant little dreamed of; the climate was a revelation, and the natural productions, being new to him, he was unacquainted with their uses and value, and it required men of more than the ordinary education, who understood the adaptability of the climate to the cultivation of more valuable products, and how to ascertain and point out, of the indigenous growths, such as were of sufficient importance to preserve and include in the future husbandry, to take the lead, in developing the agricultural resources of the recently acquired state. Dr. Wm. P. Gibbons, who was among the pioneers, saw that there was an opportunity of usefulness, in the study of the indigenous botany of California, and as it was co-incident with his previous training and tastes, he turned his attention in that direction. Dr. Gibbons first commenced the study, of the indigenous botany of this state in 1853, and he has continued the study, although the object has been somewhat modified, down to the present time.

In his researches after the different species of plant-life, he has travelled over the state, from Mount Shasta, on the north,

to the Mojave desert, on the south, and from the sea-coast to the summit of the Sierra Nevada sometimes in the company of other scientific gentlemen and, at other times, by himself, preserved from loneliness, in his wanderings, only by his zeal and enthusiasm in his pursuit. For several years, the doctor intended to include the entire indigenous botany of the state in his examinations and descriptions, and when completed, to publish the work; but other necessary duties occupied so much of his time, that the years rolled by, and his work was yet so incomplete, and others having entered the same field, with the same object in view, that he reluctantly gave up his original purpose, and has since limited his botanical labors, principally, to the analysis of, and to special experimentations with certain of the most promising of our indigenous species of plants and vegetable life, with the object of demonstrating respectively, the pharmaceutic properties of some, and the value for food and other economic uses of others, including the differences in the properties of the different species of the same class, and of the difference in composition and value of the same species, growing in different localities and under different circumstances. The older members are cognizant of the several reports which the doctor has made, from year to year, to this society, and which have been published in its transactions, with the exception of one report, which the doctor failed, from lack of time, to revise, as he desired, in season for the publisher. These reports are valuable, and in their present form, may continue to be available, to some extent, but it appears to me that that method of circulation is not in conformity with the value of the papers, and that if the doctor could revise the work already published, with additions from the report which has not been published, and from his more recent investigations, and publish all together in a more suitable form; that it would in a certain sense resuscitate his labors, as it were, and preserve the results for future reference. But whilst during the thirty-five years, the doctor has devoted much valuable time to this work, the only return it has brought him, has been to keep his memory fresh with his confreres of the scientific world, and the satisfaction in the acquisition of the useful knowledge, and the benefit obtained from it by others, having himself received no pecuniary equivalent therefor; and whilst the doctor's life has been spent in useful labor, he has failed to give that close attention to his personal interests, to enable him to accumulate

a surplus, and thus, in his advanced years, he is still obliged to devote his time to the daily routine of medical practice, and therefore lacks the leisure and means to complete his work and republish it. That the doctor's labors have been of advantage to the state, in a branch in which there has been a great lack of information, and that therefore, the state is indebted to the doctor, there can be no question; and it appears to me, that in justice, there ought to be some way devised to enable him to put the work into a more complete and better available form.

I have made this statement, in consequence of the knowledge which I already possessed of the matters referred to, and although I have recently acquired, from Dr. Gibbons, himself, some of the exact data, I did not inform him of my reason for so doing; and neither the doctor nor any one else, knew of the purport of what I was going to say, on my taking the floor; and this brief history has been given, in order that the members generally might be informed of the sacrifices which have been made by a member of this society, in the behalf of science, and the development of the resources of the state, and in the hope that it might be suggestive of some scheme or arrangement whereby the work might be completed.

TWELFTH ANNUAL REPORT OF THE BOARD OF EXAMINERS.

CHARLES E. BLAKE, Chairman.

BY WM. M. LAWLOR, M.D., Secretary.

SAN FRANCISCO, April 18, 1888.

Number of meetings held during the year	13
Number of original certificates granted	268
Number of duplicated certificates granted	2
Total number granted during the year	270
Number refused because of insufficient credentials	5
Graduates of California schools	37
Other American schools	207
Canadian schools	9
Foreign schoo[illegible]	15

The work of preparing the necessary data for the Fourth Edition of the Medical Register was begun somewhat later than it should have been, owing, in part, to an imperfect appreciation of the labor involved, and of the delay in obtaining information from tardy or indifferent correspondents. Over three thousand letters were prepared, and sent to postmasters, medical societies, colleges, advertisers, physicians, etc., and in many instances, a second, third, and even fourth letter was sent in order to obtain some item, or verify a statement. The county lists were revised, and corrected, and in this work, thanks are especially due to the physicians in the more thickly populated counties, who furnished material aid, in our efforts to obtain correct names and addresses.

In this correspondence, quite a number of physicians had their attention called to the law, and immediately took steps to comply with its requirements.

When it was found that the number of advertisements received were insufficient to warrant the issuing of the Medical Register for this year, the nearly completed work of compilation was discontinued, and a supplement to the third edition of the register has been prepared, containing a list of licentates, who had been granted certificates from January 1, 1887, to April 7, 1888. The work of the Board is steadily increasing. During the past year 270 certificates were issued, an increase of 59 over the previous year.

We submit herewith the financial report of the board for the fiscal year:

FINANCIAL REPORT OF BOARD OF EXAMINERS FOR THE FISCAL YEAR ENDING APRIL 18, 1888.

BY WM. LAWLOR, Treasurer.

ASSETS.

To cash on hand April 21 1887,	$21 36	
" " applicants for certificates,	1,464 00	
" " " " " (excess),	1 50	
" " advertisements in Med. Register,	50 00	
" " sale of registers,	7 50	
		$1,544 36

DISBURSEMENTS.

By cash for stationery, postage, express and messenger service,	$199 15	
By cash, fees returned applicants,	95 25	
" " Prof. Espina engrossing certificates,	27 00	

By cash, Bancroft & Co., as per vouchers,	64 75	
" " H. S. Crocker & Co., "	53 05	
" " J. J. Evans, as per "	39 49	
" " incidental expenses "	25 45	
" " expense O. Leary case at Woodland,	32.50	
" " lawyers' fees,	250 00	
" " Secretary's salary,	250 00	
" " extra clerical labor and office rent,	350 00	
By cash for 500 copies supplement to official register as per voucher,	57 00	1,443 64
Cash on hand,		$100 72
Total assets as above,	$1,534 36	
Total disbursements as above,	1,443 64	
Amount in Treasury April 18, 1888,	$100 72	

REPORT OF COMMITTEE

ON

MEDICAL LEGISLATION

By CHAS. E. BLAKE, San Francisco, Chairman

AN ACT TO REGULATE THE PRACTICE OF MEDICINE AND SURGERY IN THE STATE OF CALIFORNIA.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Governor, within twenty days after this Act shall take effect, must appoint a Board of Medical Examiners consisting of seven persons, to wit: one person from the faculty of each of the regularly incorporated Medical Colleges of this State in existence on the first Monday in March, 1889, and actually engaged at that time in the business of medical education, with a full corps of medical instructors and in good standing as a medical institution, and the remainder from the medical profession at large in this State. Said appointees must be citizens of the United States and regular graduates in medicine from some legally chartered medical school, and be representative men in their profession, as well as legally qualified

practitioners of medicine in this State. They shall be known as the Board of Medical Examiners of the State of California, and their term of office shall be four years and until their successors shall have been appointed and qualified; except, however, that the persons first appointed as members of said Board shall, at their first meeting, so classify themselves by lot that one of them shall go out of office in one year, two in two years, two in three years, and two in four years, and the Governor shall appoint successors accordingly.

Vacancies occurring in said Board shall be filled by appointments by the Governor to fill the unexpired term.

In filling any vacancy in said Board, and in making any appointment for a member thereof, the appointee shall be taken from the medical faculty of which his predecessor was a member, or from the medical profession at large if his predecessor was a member of no medical faculty.

SECTION 2. Each member of said Board shall, before entering upon the duties of his office, take the constitutional oath of office, and shall, in addition, make oath that he is a regular graduate in medicine, and a legally qualified practitioner of medicine in this State.

SECTION 3. Said Board shall meet quarterly in the City of San Francisco, on the third Tuesdays of February, May, August and November of each year, for the consideration of applications for certificates, and for the transaction of such other business as may properly come before it. The Board shall organize by electing from its number a President, Vice-President, Secretary, and Treasurer, who shall hold their respective positions during the pleasure of the Board. Special meetings may be held at the call of the President. Due notice of each regular meeting of the Board shall be given by publication once a week for each of the three weeks next preceding each meeting in two daily papers published in the City of San Francisco. Said Board shall procure a seal and shall receive through its Secretary applications for the certificates provided to be issued under this Act.

SECTION 4. Said Board may from time to time adopt such rules as may be necessary to enable it to carry into effect the provisions of this Act. Any member of said Board may administer oaths in all matters pertaining to the duties of said Board, and the Board shall have authority to take evidence as to any matter cognizable by it.

SECTION 5. Every person, before practising medicine or surgery, or any of the departments of medicine or surgery, in this State, must have the certificate herein provided. In order to procure such certificate, he must be of good moral character, and must present a diploma issued by some legally chartered medical school, or a license from some legally constituted institution which grants medical and surgical licenses only upon actual examination, and must accompany the same by an affidavit stating that he is the lawful possessor of the same, that he is the person therein named, that the diploma or license was procured in the regular course, either of instruction or examination, without fraud or misrepresentation of any kind; and *if he have a diploma*, that the medical institution granting said diploma had, at the time of granting the same, a full corps of medical instructors, and was, at the said time, a legally incorporated institution actually and in good faith engaged in the business of medical education, and in good standing as a medical institution, and that the applicant had complied with all the requirements of said institution; *and if he have a license*, that the body granting it was legally constituted and empowered to examine candidates and grant licenses authorizing qualified applicants to practise medicine and surgery. Such affidavit may be taken before any person authorized to administer oaths, and the same shall be attested under the hand and official seal of such officer, if he have a seal. In addition to such affidavit said Board may hear such further evidence as in its discretion it may deem proper as to the verification of any such diploma or license, or as to the identity of the person named therein, or as to the manner in which any such diploma or license was procured. And if it should appear from such evidence that any statement in said affidavit is untrue, the application shall be rejected. Each applicant, on making application, shall pay to the Secretary of the Board a fee of twenty dollars. In case any applicant fails to pass the examination herein provided, the fee for any subsequent examination shall not exceed ten dollars.

SECTION 6. Before a certificate shall be granted to any applicant, said applicant must be personally examined by said Board as to his qualifications to practise medicine and surgery. The examination may be conducted in whole or in part in writing, and shall be on the following subjects, to-wit: Anatomy,

Physiology, Pathology, Chemistry, Toxicology, Surgery and Mechanical Obstetrics, and no certificate shall be issued unless the applicant receives the affirmative votes of not less than five members of the Board. The examination papers shall form a part of the records of the Board and shall be kept on file by the Secretary.

SECTION 7. When any applicant has shown himself to be possessed of the qualifications herein required, and has successfully passed the said examination, a certificate must be issued to him by said Board authorizing him to practise medicine and surgery in this State. Said certificates shall be signed by the President and Secretary of said Board and sealed with the seal of the Board.

A temporary certificate may be issued by the President and Secretary of said Board to an applicant presenting a diploma or license with the necessary affidavit and fee and proof of good moral character, as specified in section 5 of this Act, which certificate shall authorize the holder to practise medicine and surgery in this State until the adjournment of the next regular meeting of said Board and no longer, and said certificate shall have written across the face thereof "Temporary Certificate."

SECTION 8. Said Board shall keep an official record of all its proceedings, a part of which record shall consist of a register of all applicants for certificates under this Act, with the result of each application. Said record shall be evidence of all the proceedings of said Board, which are set out therein.

SECTION 9. Every person holding a certificate authorizing him to practise medicine and surgery in this state must have it recorded in the office of the County Clerk of the county in which the holder of said certificate is practising his profession, and the fact of such recording shall be endorsed on the certificate by the County Clerk recording the same. Failure to so record shall be *prima facie* evidence of want of possession of such certificate. Any such person removing to another county to practise must have his certificate recorded in the county to which he has removed.

SECTION 10. The County Clerk shall keep in a book provided for the purpose, a complete list of the certificates recorded by him, with the date of the record; and said book shall be open to public inspection during his office hours.

SECTION 11. Unless a person possesses a certificate under which he is, by virtue of the provisions of this Act, authorized

to practise medicine and surgery in this State, he shall not be entitled to any compensation for medical or surgical service.

SECTION 12. Said Board must refuse a certificate to any person guilty of unprofessional conduct; but before such refusal the applicant must be cited by citation signed by the Secretary of the Board and sealed with its seal. No such citation shall be issued except upon a sworn complaint filed with the Secretary of said Board, charging the applicant with having been guilty of unprofessional conduct, and setting forth the particular acts constituting such unprofessional conduct. On the filing of such complaint, the Secretary must forthwith issue a citation, and make the same returnable at the next regular session of said Board occurring thirty days after filing the complaint. Said citation shall notify the applicant of the time and place when and where the matter of said unprofessional conduct shall be heard; the particular unprofessional conduct with which the applicant is charged, and that the applicant shall file his written answer under oath within twenty days after the service on him of such citation, or default will be taken against him and his application for a certificate refused. The attendance of witnesses at such hearing shall be compelled by subpœnas issued by the Secretary of the Board under its seal, and said Secretary shall in no case refuse to issue any such subpœna on a fee of twenty cents being paid him for each subpœna.

Said citations and said subpœnas shall be served in accordance with the then existing provisions of law as to the service of citations and subpœnas generally, and all the provisions of any existing law relating to subpœnas are hereby made applicable to the subpœnas provided for herein.

In all cases of alleged unprofessional conduct arising under this Act, depositions of witnesses may be taken the same as in civil cases, and all provisions of any existing law as to the taking of depositions are hereby made applicable to the taking of depositions under this Act.

If the applicant shall fail to file with the Secretary of said Board his answer under oath to the charges made against him, within twenty days after service on him of said citation, or within such further time as the Board may give him, and the charges on their face be deemed sufficient by the Board, default shall be entered against him and his application refused.

If the charges on their face be deemed sufficient by the Board and issue be joined thereon by answer, the Board shall proceed to determine the matter, and to that end shall hear such evidence as may be adduced before it; and if it appear to the satisfaction of the Board that the applicant is guilty as charged, no certificate shall be issued to him. No certificate shall be refused on the ground of unprofessional conduct, unless the applicant has been guilty of unprofessional conduct within one year next preceding his application.

If any holder of a certificate be guilty of unprofessional conduct, his certificate must be revoked by the Board; but no such revocation shall be made unless said holder is cited to appear, and the same proceedings are had as is hereinbefore provided in this section in the case of refusal to issue certificates. The accused party, at the time he presents his answer for filing, shall deposit with the Secretary his certificate, and unless he do so, the Secretary must not file his answer, and default shall be thereupon entered against him, if the charges on their face be deemed sufficient by the Board. When a certificate is revoked, the Secretary of the Board—if said certificate has been deposited with him—shall write across the face thereof, in red ink, the fact of such revocation, and shall also certify said fact under the seal of the Board to the County Clerk of the county in which the person whose certificate has been revoked is, at the time of said revocation, practising his profession, and said Clerk must thereupon write upon the margin or across the face of his register of the certificate of such person, the following: "This certificate was revoked on the day of 18 ," giving the day, month and year of such revocation in accordance with said certification to him by said Secretary. The record of such revocation so made by said County Clerk shall be *prima facie* evidence of the fact thereof and of the regularity of all the proceedings of said Board in the matter of such revocation.

No certificate shall be revoked for unprofessional conduct unless the accused has been guilty thereof within one year next preceding the time of filing the complaint charging him with such unprofessional conduct.

From the time of the revocation of a certificate, the holder thereof shall be disqualified from practising medicine or surgery in this State.

The following acts constitute unprofessional conduct, to-wit:

1. Procuring, or aiding or abetting in procuring, a criminal abortion.

2. Employing what are popularly known as "cappers" or "steerers."

3. Obtaining any fee on the assurance that a manifestly incurable disease can be permanently cured.

4. Willfully betraying a professional secret.

5. All advertising of one's medical business, in which untruthful and improbable statements are made.

6. All advertising of any medicines, or of any means, whereby the monthly periods of women can be regulated, or the menses re-established if suppressed.

7. Conviction of any offense involving moral turpitude.

8. Habitual intemperance.

SECTION 13. Each member of said Board, except the Secretary, shall receive not more than ten dollars for each day of actual service in transacting such business as may come before the Board, together with all necessary traveling expenses. The Secretary of the Board shall receive a salary of twenty-four hundred dollars per annum and office rent and his necessary traveling expenses. The expenses of said Board shall not exceed five thousand dollars per annum. All of the compensation and expenses herein provided, together with the office expenses of said Board, shall be paid, upon presentation of certificate duly signed by the President and Secretary of the Board to the State Treasurer, out of any moneys in the General Fund not otherwise appropriated.

All moneys received by said Board shall be paid into the State Treasury and the General Fund thereof credited therewith.

SECTION 14. Any person practising medicine or surgery in this State, without having a valid, unrevoked certificate, as provided in this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished, by a fine of not less than one hundred dollars, nor more than one thousand dollars or by imprisonment for not less than thirty days, nor more than three hundred and sixty-five days, or by both such fine and imprisonment.

In each such conviction, one half of the fine, if any be imposed, shall be paid, when collected, to the prosecuting witness,

and the other half shall be paid into the school fund of the county or city and county in which such conviction was had.

SECTION 15. Every person filing for record, or attempting to file for record, the certificate of another, claiming such certificate to be his own, or himself to be the person named therein as being entitled to the same, shall be guilty of felony, and upon conviction thereof shall be subject to such penalties as are provided by the laws of this State for the crime of forgery.

SECTION 16. Any person who holds a certificate from one of the Boards of Examiners heretofore existing under the provisions of "An Act to Regulate the Practice of Medicine in the State of California, approved April 3, 1876," or An Act Supplemental and Amendatory to said Act, which became a law April 1, 1878, shall not be compelled to procure a new certificate, and the certificates heretofore issued under each of said Acts shall entitle the holders thereof to practise medicine and surgery in this State the same as if they had been issued under this Act; but said certificates may be revoked for unprofessional conduct, the same as if they had been issued under this Act. The District Attorneys, Prosecuting Attorneys, and Attorney-General must prosecute all persons who violate the provisions of this Act.

SECTION 17. Any person who professes himself to be actually engaged in practising medicine or surgery, or who shall, for pecuniary consideration, prescribe or administer medicine for, or treat disease, injury, or deformity, shall be deemed as practising medicine within the meaning of this Act.

SECTION 18. This Act shall not apply to lawfully commissioned surgeons of the United States army or navy, nor to physicians or surgeons attached to the United States Marine Hospital service, when engaged in the performance of their official duties.

SECTION 19. Said Board shall annually make a full report of its proceedings to the Governor, which report shall be printed and distributed as are other public documents. Said report shall be accompanied by the annual report of the Treasurer of said Board.

SECTION 20. The fiscal year of said Board shall be the same as the fiscal year of the State.

SECTION 21. The Secretary of State must, on requisitions made by the President of said Board under the seal thereof, furnish said Board with all necessary stationery, and on like requi-

sitions the Superintendent of State Printing must do printing necessary to the operations of said Board.

SECTION 22. An Act entitled "An Act to Regulate Practice of Medicine in the State of California," approved Ap 3, 1876, and An Act entitled "An Act Supplemental to, an Amendatory of, an Act entitled An Act to Regulate the Practice of Medicine in the State of California, approved April 3, 1876," which became a law April 1, 1878, and all Acts and parts of Acts in conflict with this Act, are hereby repealed.

SECTION 23. This Act shall take effect and be in force thirty days from and after its passage.

DISCUSSION AND REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

DR. H. S. ORME, of Los Angeles, concurred in the bill, with the exception of section 14, relating to fines, which, as well as the penalty, he thought were too small. He believed that half of the fine should go to the informer. This would materially assist the working of the Act. In every community there are persons who are willing to do this work, and this will compensate them for the service that they rendered.

Dr. H. J. CRUMPTON, of Sausalito, said that he had had some experience in the working of the medical law. He regarded this Act as a decided improvement on that at present in force. He thought that after the deliberate action of the committee, assisted by the legal member of the Society, Dr. (Taylor,) that it would be unwise to attempt to tinker with it. He favored placing it in the hands of the Committee on Legislation, for presentation to the Legislature, and would urge upon every member of the Society the necessity of earnest personal effort in its behalf. The people demand that pilots, who bring ships into port, shall have a license, or that a man who takes charge of a locomotive must know something about it, but they seem willing that any irresponsible confidence operator may assume the *role* of doctor.

DR. G. F. G. MORGAN, of San Francisc[illegible] [illegible]everal years ago he had attempted to enforc[illegible] [illegible]w, but he signally failed. If there had [illegible] [illegible]whereby half the fine would go to the co[illegible] [illegible] have been at least fifty witne[illegible]

DR. ORME offered as a[illegible]

imposed shall go to the informer, and the other half to the school fund of the State."

THE PRESIDENT suggested that the question might be put, "That it is the sense of this Society that such a change should be made, and that the matter be left in the hands of the Committee with power to act."

This was unanimously adopted by the Society.

REPORT OF COMMITTEE

ON

"PRIZE ESSAY."

By M. M. CHIPMAN, M. D., Chairman, San Francisco.

Mr. President: Your Committee on "Prize Essay" presents the following report:

For the year now just passed, there has been but one Essay in competition for the prize offered by this Society, handed into this Committee, and after having read and considered the said essay, the Committee have come to the conclusion, that although the paper exhibits familiarity with the subject treated, and is valuable in some respects; yet that it also has the de-merit of being somewhat disconnected in style, and containing matter which is irrelevant, or but distantly connected with its subject, and that it lacks the finish and completeness to entitle it to the distinction of being the "Prize Essay" of this Society; and this Committee, therefore, recommends that no prize be awarded.

The Committee on "Prize Essay," at the last annual meeting, suggested that the Society should name the subject to be written upon by competitors for the prize, and recommended that the subject for the year then to follow, should be that of "[illegible]ism or Hyperesthesia," and the Society, on motion, [illegible] recommendations of the Committee. There are [illegible] the profession, as are some of the gentle[illegible]e of the previous year, who are fond of [illegible] reasoning and speculating upon the oc[illegible], and whose wide experience and exten-

sive observations have qualified them for so doing, and of writing upon those subjects with credit to themselves and with profit to others; but it is evident that the Committee did not take into consideration the circumstance that it is the younger members who mostly write the competitive essays; and thus it has occurred that the selecting the subjects has been the cause, in one instance at least, of failure to write for the prize, as this Committee has the statement to that effect in a letter from a young physician of an interior town; and it is presumable that others may have been deterred from writing on account of the abstruseness of the subject thus designated.

Your committee would recommend that competitive essays for the prize, offered by this society, might be written upon any subject within the domain of legitimate medicine, the writers, each for himself or herself, making the selection. Your committee recommends this because of the backwardness in regard to essay writing, among the members of the society, believing that such liberal course will encourage writing, rather than the opposite course of restriction. This committee would also recommend that competitors be required to conceal their identity, that instead of the writer's name being affixed, each essay shall be accompanied with a motto, whereby it can be claimed after the report of the committee has been rendered; and further, that all competitive essays shall be required to be placed in the hands of the chairman of the committee, on or before the first day of April of each year.

Respectfully submitted,

M. M. Chipman,
J. O. Hirschfelder,
M. Regensberger,
E. G. Overend,
Committee on Prize Essay.

REPORT OF COMMITTEE
ON
THE RUSH MONUMENT FUND.

By ALBERT L. GIHON, Medical Director U. S. Navy, in charge of the U. S. Naval Hospital, Mare Island, Cal., Chairman.

In these days of advanced medical education, it would seem that I almost owe an apology to such a body as the State Medical Society of California for offering any explanation of the reasons which induced the American Medical Association, when it had resolved to undertake the erection of a monument to a patriot physician, to select Benjamin Rush from among the men who have honored our profession and our country in the early days of the nation's history. It was a significant fact last year, when I had the honor of presenting this matter to you, that before I had spoken, I should have listened to these words in the address of your then presiding officer, Dr. Thorne: "In our own country, the great events that impelled the infant colonies to struggle for a principle against the most potent monarchy of the world gave to medicine a genius and to his country a patriot, a statesman, and a philosopher—the immortal Benjamin Rush."

These words are all the explanation needed of the reasons why the physicians of America should find in Benjamin Rush the one to be commemorated as the representative of their profession among the founders of the Republic.

Because he was a great physician, and withal a zealous patriot, an exemplary citizen and an upright estimable man, a busy, earnest, useful member of society,—because he was so shining an example in all the varied public positions he filled; it has been, without question, resolved that his monument should have a place at the national capital, among the other heroes who builded the nation—and this not alone for his personal distinction—but as symbolizing that share which men of our profession have had and should always have, in the public affairs of their country. In the eyes of many, a

physician has no other mission in life than to visit sick people and try to get them well, it being understood that this work of repair shall be done, like the mending of a piece of broken furniture, as cheaply as possible.

In the military and naval services, the medical man who opens his lips outside the hospital or dispensary is considered as transcending his vocation, and physicians themselves too readily acquiesce in the surrender of their duties of citizenship and the severance of other than professional ties with the body politic. It is exceptional when they occupy those positions of prominence in the departments of the government and the great social institutions for which the study of their exalted science pre-eminently fits them. Instances enough, however, demonstrate the physician's fitness for any office of dignity and responsibility. A learned physician, Justice Miller, is siting on the bench of the Supreme Court of the United States, and eight of our profession are creditable members of the present congress. Never, however, in the hundred years since his time, has any one physician filled so many parts, and all so well, as this wonderful man, whose memory we are seeking to honor, by erecting a statue to him in the city of Washington; and I will only detain you a few minutes to show why such a statue should be erected in this place, rather than elsewhere,—and this I can best do by quoting from the circular addressed by the Rush Monument Committee to the members of the profession of medicine in this United States:

"At the meeting of the American Medical Association at Washington in 1884, it was remarked, that while that beautiful city was adorned with statues of patriots, who have aided to establish the American Nation and in themselves have made the name American honorable among men, there was no representative of the profession of medicine among those who had been thus commemorated. * * * Painters and sculptors, presidents and law-makers, generals and admirals, the scientist and discoverer, the philanthropist and the teacher, the jurist and the divine, thus all appropriately commemorated, — the profession of medicine ought not to delay longer in erecting its enduring testimonial of one who was not only a great physician, teacher and investigator in medicine, a philosopher, philanthropist, eloquent lecturer and accomplished writer but also a fearless patriot and founder of the republic, a member of the Continental Congress and signer of the Declaration of Independence, the first

surgeon-general of the army for the middle department and physician-general of military hospitals, and a member of the Convention for the adoption of that Federal Constitution under which we now happily live, Benjamin Rush of Pennsylvania, whose active honorable life was crowned by his heroic death on the 19th of April, 1813, in the sixty-eight year of his age, when, while trying to save other lives, he fell like a soldier on the battle-field a victim of the prevailing epidemic of typhus."

Dr. Toner in his "Medical Men of the Revolution" says of him: "His reputation as a teacher and patriot became national. His fame like that of Warren of Massachusetts and Ramsay of South Carolina belongs to all America."

Hack Tuke of London styles him the "The American Fothergill." Lettsom said of him that "he approached if he did not exceed Sydenham in grandeur and compass of thought." Zimmerman declared "his reputation merited that not only the city of Philadelphia, but humanity entire should erect a statue to him." Weir Mitchell pronounces him emphatically "the greatest physician this country has ever produced." Where then, but at the capital of that country should the statue of such a man stand since he belonged less to the city of his residence than to the nation at whose birth he so prominently assisted. Eminent as he was as a physician during a career of nearly half a century;—as a medical writer (his printed works fill seven volumes of which six are on medicine); as an unrivaled medical teacher (his pupils numbered over two thousand); as an eloquent lecturer (a professor in the Medical College of Philadelphia, and afterwards the University of Pennsylvania for forty-four years); as a fearless and successful practitioner in seasons of frightful epidemics, especially the great yellow-fever of 1793,—ultimately losing his life in the typhus epidemic of 1813; eminent as a philanthropist, having been president of the American Society for the abolition of slavery, vice-president of the Philadelphia Bible Society, one of the earliest advocates of a public school system of the higher education of woman, of the abolition of public punishment and of prison reform, and of measures for preventing the abuse of alcohol, a leader in the modern humane treatment of the insane and a sanitarian far in advance of his own times; eminent as a scientist, having been vice-president of the American Philosophical Society and one of the founders of Dickinson College; eminent in all these walks in life, he was far more eminent as a patriot statesman, for as

Weir Mitchell says: "When timid men fell out of the Continental Congress he was elected to that body that he might sign the Declaration of Independence, and he was the only practicing physician whose name is on that energetic arraignment of the crown."

Indeed says Dr. Benjamin Lee in his bi-centennial address: "The report, which as chairman of Committee of the Provincial Conference of Pennsylvania, he made reference to the question as to whether it was desirable for Congress to declare independence, a report which was adopted and sent to congress immediately, might be called a rough draft of that memorable document itself, so completely does it foreshadow all its most important features."

I have not yet met any physician who did not heartily approve this project. I have heard of *one*, and I regret that I have not seen him, for he must be the one without compare in the ranks of our profession, who did object to aiding to erect a statue to a man, "who" he asserted, "*had founded a college at Chicago, and did not leave funds enough to put up a monument over his own grave.*"

The great National Medical Library and Museum, which under the auspices of the Medical Department of the Army, will soon be completed, offers a fitting locality for the proposed monument. As the statue of Professor Henry stands at the approach to the Smithsonian Institution, which was so honored by his charge, and that of Chief Justice Marshall at the ascent to the Supreme Court of the United States, over which he had so long presided; what more appropriately could first meet the physician from Maine, from Florida, from Texas, from Oregon, and from California, who visits this great depository of medical literature, science and art, than the benevolent features of so great a master in medicine as Benjamin Rush?

DISCUSSION ON RUSH MONUMENT FUND COMMITTEE.

Dr. Walter Lindley, of Los Angeles, said that the address of Dr. Gihon contained so much matter that was interesting that it would be well worthy of reference to the Committee on Publication.

Dr. W. P. Gibbons, of Alameda, said, as the speaker justly remarked, there is no grander character in the annals of our country, no more distinguished man in the medical profession, than Dr. Rush; and, inasmuch as the medical profession at

the present time owes a tribute, not only to his memory, but to his work; inasmuch as he was the greatest of physicians of the age, I think it only proper that something more should be done with this report than merely to submit it to the Committee on Publication. He was in favor of the appointment of a committee to solicit subscriptions from the Society.

Doctors Gihon, Tyrrell and W. P. Gibbons were appointed a committee to collect subscriptions from the Society.

REPORT OF THE COMMITTEE ON NECROLOGY.

A. H. PRATT, Oakland, Cal., Chairman.

Gentlemen of the State Medical Society:

It is with pleasure mingled with regret that your Committee on Necrology makes its report; pleasure that its report is so brief, and regret that it is compelled to report at all.

The regular attendant on our society meeting will recall to mind the stalwart form and dignified appearance of Dr. A. B. Stuart of Santa Rosa, Cal. Dr. Stuart was cast in a physical mould when nature was in a generous mood both as regards material and quality. A well-knit body, and head well shaped and squarely set on firm shoulders and broad, was the citadel of a character whose corner-stone was personal honor.

Dr. Stuart was born August 27th, 1830, was educated at Lewisburg University, Pennsylvania, but obtained his degree of M. D. from Berkshire Medical College, Mass., in November, 1856. He first practiced at West-Hampton, Mass., but in 1858 he removed to Maccomb, Ill.

In August, 1861, he became Assistant-surgeon of the 10th Mo. Inf.; and in the autumn of the same year he was injured [illegible] the construction of a fort; partial paralysis resulted. [illegible] of this injury were never fully removed. He was [illegible] during the siege in 1862 and was also present at the [illegible] and Corinth. At Iuka there was a hospital of

about 3,000 confederate wounded, which according to agreement was under the charge of southern surgeons, but Dr. Stuart was detailed by General Rosecrans to assume superintendence of them on behalf of the United States. In 1863 he was surgeon of the First Alabama Cavalry (white). Early in 1864 he was compelled, by ill health, to resign from the army, and a few months more found him at Maccomb in the practice of his calling. In March, 1866, he received an adeundem degree from Bellevue Hospital Medical College. Ill health drove him to Minnesota, and then to Santa Barbara and finally to Santa Rosa, Cal., where he remained until death came to him on the 30th of July last from apoplexy.

Dr. Stuart affiliated with local societies where he practiced and was at different times a member of the State Societies of Massachusetts, Minnesota, California, and of the American Medical Association.

The honorable character of Dr. Stuart is best attested by one incident in his career. While stationed at Iuka northern speculators in cotton offered him $10,000 cash if he would be blind to their movements; and ever after the memory of the fact that anyone should have presumed to make to him a dishonest proposition was always galling. In life Dr. Stuart was a Christian and it was his pleasure during the last year of life, and by will, to bestow $10,000, upon one of the struggling educational institutions of this state. It is a pleasure to write thus briefly of one whose life gave lustre to the human side of the race. Frailties Dr. Stuart had, but no vices, and on his grave the mantle of charity does not rest. May it be the same with us.

John Kingree France was born in Roanoake county, Virginia, January 19th, 1825. His father died when he was but nine years old and he experienced the hardships of poverty and adversity; and young as he was he contributed his share to the support of his mother and her small family. His education was mainly acquired in the common schools, although in 1844 he was able to attend the Botetourt Springs Seminary in Virginia. Shortly after this he commenced the study of medicine with his brother Dr. C. M. France, also Dr. John A. Ewing. Necessity compelled him to continue earning his livelihood and accordingly he feel back on what has been the resource of so many physicians and became a school-teacher. This avocation he followed in various places both south and west. Just when

or where he commenced the practice of medicine his son did not know, but in 1864 he came to this state and practiced at Dayton. He there remained until he returned east to prosecute his medical studies, which he did in Philadelphia, graduating from Jefferson in March, 1868.

After graduation he practiced at Martinsburg, Butte county, also at Gridley. In 1878 he came to Oakland to practice and to educate his family. Here other enterprises engaged his attention although he never fully gave up the practice of his profession. Oakland remained his home until his death, which occurred November 7th, 1887, and was caused by angina pectoris. In person Dr. France was about 5 feet 10 inches, spare of body but erect and manly in appearance and far less so in his later years than he formerly was. Dr. France was compelled by circumstances, if not so inclined by nature, to lead a quiet, retired life, and hence did not come much in contact with his fellow man; hence his excellent personal character was best known by his family and a small circle of personal friends. It cannot always be said of those that are dead that those who knew them best esteemed them the most highly. This can be said of Dr. France and for this reason alone if for no other may it be said, "peace to his ashes and honor to his memory."

SUPPLEMENTAL REPORT

ON NECROLOGY

DR. C. S. BOSCOW.

LINCOLN, CAL., June 11, 1888.

Dr. Morgan, San Francisco, Cal.:

Dear Sir:—I received your card, asking for a few facts whereby you might write the obituary of the late Dr. C. S. Boscow. I will give you a few data and you may glean and arrange to suit your purpose.

Dr. Charles S. Boscow died at Lincoln, Placer county, Cal., Monday evening, January 23, 1888, and was buried on Wednesday. The funeral service was conducted by Rev. H. M. McKnight, of Woodland. The doctor was born in Warsaw, Ill., September 2, 1860, where his first years were spent, and where his mother and his little girl now live. When about seventeen years old he came to Northern California and

remained four years, returning *to Keokuk, Iowa, in 1881*, where he graduated in the spring of 1884 from the College of Physicians and Surgeons. He was married in Quincy, Ill., to Miss Mary L. Green, of Wheatland, Cal., May 7, 1883, and in the spring of 1884 was born his only child, a daughter.

After graduating, the doctor located in Kirksville, Mo., where he remained about one year. He then came to California and located in Lincoln, June 10, 1885. A few months later he sent for his wife and child, whom he had left in Illinois. In the spring of 1887, his wife, a woman of the noblest character and purest thoughts, beloved and esteemed by all who knew her, while yet in her twenty-third year, sickened and died, March 8, 1887, and was consigned to her narrow home.

The doctor was a man of unusually bright talents, and was universally acknowledged, both by laity and professional, to possess an ability above the average of his profession. He was not quite twenty-eight years of age and, had he lived, time and application would have undoubtedly placed him among the top rounds of the ladder. In his death we have lost a brother whose life was full of richest promise, this community a useful gentleman, and his friends a man whom they all esteemed. He was a class-mate of mine. I mourn his loss.

S. E. Brummett.

Dr. J. L. MEARES

Dr. John Loudon Meares was born in Washington, North Carolina, in 1822, and was graduated at the North Carolina University. From there he went to Jefferson College, Philadelphia, and was graduated in medicine. For twelve years deceased practiced medicine in his native town, and in 1858 removed to Washington county, Mississippi, where he farmed largely and was known as a raiser of thoroughbred stock. He then only practiced medicine among his neighbors, and that gratuitously. When the war broke out Dr. Meares was appointed medical director upon General Bowen's staff, in the Confederate army. On the retreat from Bowling Green the doctor was taken with typhoid fever and returned to Wilmington, and was appointed Health Officer of that port until the end of the war. He then returned to Mississippi and to farming, and represented his district in the Legislature. He remained there three years, afte- [illegible] e came to California and settled at Fresno about 18- [illegible] ne he owned a large extent of land there, which [illegible] he failure of the Friedla

irrigation scheme. After staying about a year at Fresno, Dr. Meares came to this city and was elected Quarantine Officer. After serving several years in that capacity he was appointed Health Officer in the spring of 1876, as successor to Dr. Henry Gibbons, Jr., which position he has held ever since. He was a member of the Medical Society of this State and County at the time of his death.

Dr. Meares married Betsy Ashe Holmes, only daughter of Owen Holmes, at Fayetteville, N. C., in 1851. The marriage resulted in the birth of two children — Mary, married to Lieutenant Roger Galt, U. S. N., now residing in the East, and John Loudon Meares, Superintendent of the city delivery of the San Francisco Postoffice. Mrs. Meares died when both children were very young, since which time, as his son expressed it, "the doctor has been both father and mother to us." Up to the Saturday before Christmas day, the doctor attended to the duties of his office, though complaining of ill health. That night he took to his bed. On Tuesday he commenced to sink and occasionally lost consciousness, though he regained it just previous to death. He died of dropsy, on the morning of January 13th, 1888, at his residence in this city, aged 65 years. Dr. Meares leaves behind him an enviable reputation both as a man and as a physician. While Health Officer of this city he has been looked upon as an authority both here and abroad upon diphtheria and small-pox. His reports upon vaccination with bovine virus as a preventive against the latter disease have become works of reference in the East and Europe. Dr. Meares was a very genial man and has left a very large circle of friends and acquaintances to mourn him. To the poor he was always kind and ever willing to give them the benefit of his professional service, and his purse was always open to those in need. Our Society loses an estimable member by his death.

In consequence of the failure of the Committee on Necrology to report upon the death of Drs. J. L. Meares of San Francisco, C. S. Boscow of Lincoln, and Alfred H. Woodill of Riverside, the Chairman of the Committee on Publication endeavored to gain knowledge sufficient to serve as a brief record of the society's loss. By the courtesy of Mr. J. L. Meares a brief account of his father's life was furnished me, and Dr. Brummett's testimonial to his friend Boscow is inserted from the feeling that the sacred words of friendship speak more eloquently to our hearts than would the more formal statements of an official memoir.

Of Dr. Woodill I have received nothing.

Respectfully submitted,

San Francisco, June 23, 1888.

G. F. G. MORGAN, M.D.,
Chairman, Com. on Publication.

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, active and honorary members, who shall collectively represent and have cognizance of the common interest of the medical profession in the State of California.

SEC. 2. Each delegate from a local Society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one-half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Active Members.—Every physician who shall properly satisfy the Board of Censors that he possesses the necessary qualification as prescribed, may become an active member of this Society, and all those who may thereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby

become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location were there is a local medical society and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

SEC. 5. Honorary members shall consist of such distinguished *savants* and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The seal of the Society shall always be kept by the Permanent Secretary.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be a President, four Vice-Presidents, one Permanent and two Assistant-Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be elected by the Society at large, during the afternoon session of the second day of meeting. The election shall be by ballot. With the exception of Permanent Secretary, each officer shall hold his appointment for one year, or until his successor is elected.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his

ted shows enough of the beautiful design
ire the common origin of the Medical
the cock that was wont to
Vigilance," is crowing out
e serpent, emblematic of
l the doctor's staff at his
ualities a physician should

election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall authenticate the proceedings; give due notice of time of next meeting; serve as a member of Committee on Publication; preserve the archives and unpublished transactions of the Society; hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of the duties assigned them; and in the absence of the Permanent Secretary one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II. of this Constitution, the Board of Censors shall recommend such applicants to the Society as suitable candidates for election. In the absence or loss of applicant's diploma, the Board of Censors may accept satisfactory proof that the diploma has been presented to the State Board of Examiners of this Society, and a license to practice issued thereon. It shall be the further duty of the Board of Censors to examine into the present professional standing of the applicants.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following standing committees, each composed of five members, of which the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned:

On Practical Medicine and Medical Literature.
" Surgery.
" Obstetrics.
" Medical Topography, Meteorology, Endemics and Epidemics.
" Indigenous Botany and the Domestic Adulteration of Drugs.
" Public Hygiene and State Medicine.
" Histology and Microscopy.
" Mental Diseases and Medical Jurisprudence.
" Medical Education.
" Publication.
" Arrangements.
" Prize Essays.
" Gynecology.
" The Medical and Surgical Diseases of Children.
" Ophthalmology, Otology, Laryngology and Rhinoscopy.
" Necrology.
" Medical Legislation.
" Graduating Exercises.

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management

of surgical diseases effected in the State during the year, and, as far as can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to puerperal women, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on the Medical and Surgical Diseases of Children shall present an annual report of the improvements made in their section, in this state, during the year.

SEC. 6. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also, the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 7. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the Indigenous Medical Botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 8. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 9. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 10. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psychological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable. The duties of these committees shall be defined by a committee of three, appointed by the President for that purpose.

SEC. 11. It shall be the duty of the Committee on Education to be present on the final examination of the regular medical schools of this State, and to report on the education imparted and required by these institutions as compared with that imparted and required by other States of the Union and of Europe, and on such other matters as they may deem worthy of consideration in reference to medical education.

SEC. 12. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.

SEC. 13. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing such of the proceedings, transactions and memoirs of the Society as may be deemed worthy to be published.

SEC. 14. The Committee on Arrangements shall be composed of members residing at the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 15. In order to afford the Committees on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary societies in the state to transmit to the the Chairman of these respective committees, on or before the first day of March of each year, a special report, embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 16. The standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of the meeting.

of surgical dise
as far as can be
performed, with

SEC. 4. The
annual report on
art, and in the
women, effected
such remarks t
proper.

SEC. 5. The
Diseases of Chil
provements mad
year.

SEC. 6. The C
ology, Endemics,
report on the pecu
sections of the S.
subject; also, the
vailed throughout

SEC. 7. The C
Domestic Adulter
port on the Indig
fornia, paying part
to possess valuable
described in standa
found. Also, to rep
market, with the vie
tensive introduction
articles.

SEC. 8. The Co
Medicine shall prep
mane to this importa

SEC. 9. The Com
report and demonst
annually, bearing
gery, as they may

SEC. 10. Comm
prudence. Th
questions,
prudence

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia, in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors, for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived from all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is presented as a By-Law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and except when temporarily suspended, shall be as follows:

I. Organization of the meeting.

II. Report of the Committee of Arrangements on the credentials of members, after the latter have registered their names and addresses, etc.

III. The calling of the roll.

IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.

V. Reception of members by invitation.

VI. The reading and consideration of the stated annual reports from the standing committees.

VII. Reading and discussion of voluntary contributions.

VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the standing committees.

IX. Resolutions introducing new business, and instructions to standing committees.

X. Unfinished and miscellaneous business.

XI. Reading of the minutes of the session about to conclude.

XII. Adjournment.

RESOLUTIONS RELATING

TO THE

GOVERNMENT OF THE SOCIETY.

RESOLVED, That the permanent Secretary be allowed a salary of one hundred dollars.

b. "That the Secretary notify the committees of their appointment as soon as made by the President; also, that the chairman of each committee be requested to notify each member of said committee of his appointment.

c. "That the chairman of the various standing committees hereafter present a synopsis of their several reports, the reading of which will be considered as fulfilling the provisions of the constitution.

d. "That the Committee on Publication is hereby instructed to receive no paper for publication later than fifteen days after the close of the Annual Session of the Society.

e. "That the Publishing Committee make out an alphabetical list of the members, with their places of residence, and have the same published in the volume of Transactions.

f. "That this Society, although formally accepting and publishing the reports of the various Standing Committees and the papers of voluntary contributors, holds itself wholly irresponsible for the opinions, theories, and criticisms therein contained, except when otherwise decided by special resolution.

g. "That a committee of five members be appointed for the purpose of promoting the organization of county and district societies.

h. "That the President and Secretary of this society are authorized to issue the proper credentials to any members of this society desiring to attend as a delegate, the meeting of the American Medical Association, the British Medical Association, or any other foreign association where such credentials are required.

i. "That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State, and recommend the invocation of legislative aid in the promotion of so desirable an object.

j. "That the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society, who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.

k. "That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.

l. "That this Society cordially endorses the efforts of the State Board of Health in their endeavor to procure a law to forbid the interment or cremation of any human body within this State without having first obtained a permit for the same from some properly constituted officer appointed for that purpose. We also endorse the efforts of the same board in advocating compulsory vaccination of all children entering the public schools of this State, and also its endeavor to make the law relating to births, marriages and deaths effective.

m. "That the local Medical Societies and Boards of Health throughout the State be requested to urge their respective city, county and town authorities to establish laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health all cases of the more dangerous epidemic diseases coming under their professional observation.

n. "That the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles indicated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.

o. "That the fact of the doctor of medicine being engaged in the manufacture and sale of any secret and patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this Society.

p. "That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the American Medical Association, as well as the code adopted by this society.

q. "That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.

r. "That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.

s. "That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice, the regular profession of medicine knowing no sectarianism in medicine, practicing no exclusive dogma, nor in any way restricting its legitimate members, in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured or their lives prolonged.

t. "That this Society appeal to all ministers of the gospel throughout the State, and urge them to use their influence, in all proper and available ways, to discourage the inhuman, degrading and extensively prevailing practice of feticide.

u. "That the secretary of this society be requested to communicate with the president of each local society in the State, requesting that said presidents interest themselves in obtaining contributions of $1 from each physician in the State, in aid of the Rush Monument Fund."

Dates on which the foregoing resolutions were passed:

A, C, E.....April 10, 1874.
B.....Oct. 10, 1872.
D, F.....April 17, 1884.
H, L, U, W.....April 20, 1888.
G, R.....April 21, 19, 1875.
J, I, P, Q.....April, 1877.
K, M, T.....April 17, 1878.
N, O.....Oct. 12, 1871.
S.....April 16, 1879.

PROPOSED

CONSTITUTION AND BY-LAWS

OF THE

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

ACTION

SPECIAL COMMITTEE consisting of—

Dr. C. E. Blake (chairman), of San Francisco
Dr. W. W. Kerr, of San Francisco
Dr. S. O. L. Potter, of San Francisco
Dr. H. S. Orme, of Los Angeles
Dr. Parkinson, of Sacramento

reported the within Constitution and By-Laws, April 20, 1888.
Read and ordered to lie over until the next annual meeting.

CONSTITUTION

ARTICLE I. NAME AND OBJECTS.

SECTION 1. This Association shall be styled "The Medical Society of the State of California."

SEC. 2. The objects of this Association are: To form and constitute a representative body of the regular medical profession of the State of California, to encourage the unity and harmony of the said profession throughout the State, to advance its interests as a body of citizens and a liberal profession, and to promote the advancement of medical, surgical and hygienic science.

ARTICLE II. MEMBERSHIP.

SECTION 1. The [illegible] of this Society shall consist of Active, Permanent [illegible] Members.

SEC. 2. *Active Members* are such regularly educated physicians as shall possess the qualifications hereinafter specified, and who have been elected to membership, upon a report of the Board of Censors, at any regular meeting of the Society, in the manner required by the By-laws. They shall pay an initiation or entrance fee, and annual dues, in such amount as the By-laws may provide.

SEC. 3. *Permanent Members* are such as have been active members in good standing in every respect for 25 years, consecutively; at the expiration of which term their names shall be transferred to the List of Permanent Members, and printed in capital letters in every published list of membership thereafter, and they shall be exempt from the further payment of dues.

SEC. 4. *Honorary Members* are such distinguished persons as the Society may deem worthy of the compliment, and as are especially so elected at any annual meeting of the Society. They shall be elected as the By-laws may require; they shall have no vote at any meeting of the Society, and shall not be subject to the payment of dues.

SEC. 5. The *qualifications* necessary for membership as an active member of this Society shall be as follows, viz: — the acquirement of a regular medical education; a good professional and moral standing in the community where the candidate resides; membership in the local medical society (regular) of his district, county or town, if there be such a one in active existence; the certificate of the Board of Examiners of this Society; a favorable report upon his candidacy from the Board of Censors of this Society; and *bonâ fide* residence and practice of his profession within the State of California at the time of making his application and for six months previously.

SEC. 6. No member of this Society shall be deprived of his membership, otherwise than by his own act, except by a concurrent vote of three-fourths (¾) of all the members in good standing present at a regular meeting, or at a special meeting called for that purpose, after a full investigation by the Board of Censors, and an opportunity for the accused to be heard in his own defense. Any member, however, may be dropped from the roll of membership for two years non-payment of dues, and must be so dropped upon the revocation of his certificate. And any member may be summarily expelled without a hearing by a nine-tenths vote of all the members in good

standing present at a regular meeting, or at a special meeting called for that purpose, on presentment by the Board of Censors, upon the following grounds: conviction of a felony; wilful fraud in his graduation or in the credentials on which he was admitted to membership; an openly immoral life; public conduct of extreme indecency, viciousness or cruelty; or such other notoriously irregular conduct as a citizen or a physician, as would make his presence undesirable in the interests of public or professional morality or decency.

SEC. 7. A member may resign his membership, and shall thereupon receive an honorable dismissal, provided that he has paid up all dues to the date of his resignation, and that there are no charges pending against him by presentment of the Board of Censors.

SEC. 8. A member may be dropped from the roll for two years' non-payment of dues, after the lapse of one month from the date of the mailing to him, at his last known address by registered letter, of a statement of said dues by the Secretary. A member so dropped may be again admitted to membership by a three-fourths' vote of all the members in good standing present at any regular meeting, provided that his arrears of dues are paid up to the date of his being dropped, and that the Board of Censors recommend his re-admission. A forfeiture of membership by reason of non-payment of dues does not imply the commission of any act of turpitude, and shall not be considered a punishment. The Society shall have the power to remit any member's dues by a three-fourths' vote of all the members present at a regular meeting.

SEC. 9. To be in good standing in the meaning of this Constitution and the By-laws, a member shall not be in arrears for more than one year's dues, and free from any charges whatever by presentment of the Board of Censors. No member who is not in good standing shall vote or hold office in this Society.

ARTICLE III. OFFICERS.

SECTION 1. The Officers of this Society shall be a President, two Vice-Presidents, a Secretary, two Assistant Secretaries, a Treasurer, five Censors, and ten Examiners, of whom three shall be alternates. All the Officers shall be elected annually by ballot in open meeting, on such day and in such manner as the By-laws may require. They shall each serve for one year

from the close of the meeting at which they were elected, or until their successors shall have been respectively elected or appointed and qualified. They shall each perform such duties as the Society may from time to time require.

ARTCLE IV. MEETINGS.

SECTION 1. The regular meetings of this Society shall be held annually, at such time and place as the By-laws may require. Special meetings may be held in the manner specified in the By-laws.

SEC. 2. At any meeting of the Society twenty-one (21) members in good standing shall constitute a quorum for the transaction of business pertaining to the memberships, funds, or other material interests of the Society. But matters of routine, the reading of scientific or professional communications, and similar matters, shall not be interrupted by the absence of a quorum, provided that the session was opened in the presence of a quorum.

ARTICLE V. SEAL.

SECTION 1. This Society shall have and use one common seal which shall be in the custody of the Secretary; it shall have a suitable device and inscription, and shall be affixed to all official papers, emanating from the Society, to all transcripts from its records issued officially, and to all diplomas of membership.

ARTICLE VI. BY-LAWS.

SECTION 1. This Society shall adopt such By-laws as it may need for its government and regulation, and which do not conflict with any provision of this Constitution. They shall be published for the information of the members, shall be signed by all new members, and may be amended at any annual meeting after one day's notice and by a two-thirds vote of all the members in good standing present thereat, and in such manner as they themselves shall require. They may, for some one particular purpose, be suspended temporarily at any time by a three-fourths vote of all the members in good standing present, which purpose shall be stated in the motion to suspend.

ARTICLE VII. ETHICS.

SECTION 1. The Code of Ethics recommended by the American Medical Association, at its meeting held in Philadelphia, in May, 1847, is hereby adopted by this Society, and shall have the full force and effect of an article of the Constitution of this Society, in part or as a whole.

ARTICLE VIII. OF CONSTITUTIONAL AMENDMENTS.

SECTION 1. No alteration or amendment shall be made in this Constitution, or in any part thereof, except at an annual meeting following that one at which such amendment shall have been proposed in writing, seconded and read in full, and then only by the concurrence of three-fourths of all the members in good standing present at a session, the hour of which shall have been announced by the presiding officer and posted in the hall for at least one day previous to such final action.

BY-LAWS.

ARTICLE I. MEETINGS.

SECTION 1. The regular meetings of this Society shall be held annually, commencing on the third Wednesday in April each year, and continuing until adjournment *sine die* by a two-thirds vote of all members in good standing present.

SEC. 2. A special meeting shall be called by the President upon the written request of ten members in good standing, setting forth their reasons therefor, and the object of the call; also whenever in the judgment of the President, Vice-Presidents and Board of Censors, such a meeting is demanded in the interest of the Society. No business shall be transacted at a special meeting, except such as is set forth in the written request of the callers or in the decision of the Officers making the call, which request or decision shall be recorded by the Secretary upon the minutes of the meeting and placed on file in the archives of the Society. Due notice shall be given of all special meetings at least ten days beforehand, by mailing the same to each member in good standing, to his last known address.

ARTICLE II. MEMBERSHIP.

SECTION 1. The Board of Censors may report once during each session of a meeting of the Society upon applications for

SEC. 2. Upon the receipt of a report from the Board of Censors concerning an application for membership, the report will be read, and the Chairman will then state whether there be a minority report or not, and shall read it if there be one. The Society will then, without debate, proceed to ballot, and the votes being counted, the result will be declared before the next ballot is taken or any other business taken up. A motion to reconsider a vote for membership and take a second ballot must be made and seconded before any other ballot be taken or business taken up. Five negative votes shall cause the rejection of a candidate. Such rejected candidate shall not be again eligible for membership until the next annual meeting of the Society.

SEC. 3. Honorary members may be elected by a unanimous vote of all the members in good standing present.

ARTICLE III. OFFICERS.

SECTION 1. The President shall preside at the annual meeting next following that at which he was elected, and at all special meetings of the Society during his term of office. He shall preserve order, give the casting vote when a tie-vote occurs, and shall generally perform all other duties devolving on him by the custom and usage of deliberative assemblies. He shall open the annual meeting next succeeding that of his election by an address upon some subject in harmony with the objects and aims of the Society. He shall fill, by appointment for the unfinished term, all vacancies occurring among the Officers, and shall appoint all members of committees not otherwise provided for.

SEC. 2. The Vice-Presidents shall assist the President in the performance of his duties, when requested to do so by him; and during his absence or disability one of them shall officiate in his place.

SEC. 3. The Secretary shall supervise the recording of the minutes and transactions of the Society and shall authenticate the same by his signature; he shall give notice of the time of all meetings, and he shall be, *ex officio*, Chairman of Committee on Publication; he shall be charged with the care and preservation of the archives of the Society, and with the distribution of its published transactions. He shall keep the roll of members, collect all dues and fees and turn them over to the Treasurer, giving and taking receipts therefor. He shall, at the

close of his term of office, turn over to his successor all books, papers, and other property belonging to the Society in his possession. For the faithful performance of his duties he shall receive an annual salary of one hundred ($100) dollars, except as hereinafter specified.

SEC. 4. The Assistant Secretaries shall perform such duties as may be assigned to them respectively by the Secretary, and in his absence or disability one of them shall perform his duties, after being assigned thereto by the President, until the return of the Secretary to duty or until the appointment or election of his (the Secretary's) successor.

SEC. 5. The Treasurer shall have charge of the funds of the Society, hold them subject to its disposal, and pay them out on the warrant of the President, countersigned by the Secretary, and in pursuance of a standing or a special order, resolution or By-law of the Society. At each annual meeting he shall present an annual report, showing in detail the receipts and expenditure, each sum received and from whom, also each sum disbursed, to whom, and on what account. His report shall be accompanied by vouchers for all disbursements, and shall be referred to a special committee for audit, as soon as received.

SEC. 6. The Board of Censors shall sit daily during the meetings of the Society, and shall examine the credentials of all candidates for membership. If the said credentials appear to be genuine documents, and in the possession of their rightful owner, and shall conform to the requirements of Section 5, Article 2, of the Constitution of this Society, as to the qualifications necessary for membership therein, the Board shall forthwith recommend said candidate for membership in the Society, except as hereinafter provided, and with any such qualification or recommendation that its members see fit to present to the Society:—Provided that, in the case of any doubt arising in respect of the genuine character of the documents presented by the candidate, or of his moral or professional character, or of his previous career, the Board may postpone final action in any case until the next meeting of the Society, and in the interim shall use due diligence to obtain information, from other than newspaper sources, of the matter concerning which there may be doubt.

SEC. 7. If, on presentation of the Board of Censors in any case, or cases, there be a minority report from any member thereof, it shall be presented by the Chairman at the same

time as the majority report, and all such reports shall be read in full before any action is taken by the Society.

SEC. 8. The Board may satisfy itself regarding an applicant's professional educational qualifications by reference to the records of the Board of Examiners of this Society.

SEC. 9. The Examiners shall constitute the Board of Examiners for the issuance of certificates to regular practitioners, under the Acts of the State Legislature governing the practice of medicine in the State of California. This Board shall present an annual report of its proceedings to the Society, together with a Financial Statement, showing *in detail* both its receipts and disbursements during the previous year.

ARTICLE IV. STANDING COMMITTEES.

SECTION 1. The following entitled Standing Committees shall be appointed annually, in the manner hereinafter provided, viz:—

Clinical Medicine, including Diagnostics and Therapeutics.
Pathology and Pathological Anatomy.
Indigenous Botany, Materia Medica, Pharmacy and Medical Chemistry.
Anatomy and Physiology.
Histology and Microscopy.
Surgery and Clinical Surgery.
Obstetrics and the Puerperal Diseases.
Gynecology.
Medical and Surgical Diseases of Children.
Ophthalmology and Otology, Laryngoscopy and Rhinoscopy.
Diseases of the Mind and Nervous System.
Medical Jurisprudence.
Medical Topography, Meteorology, Endemics and Epidemics.
State Medicine and Hygiene, and Adulteration of Foods and Drugs.
Medical Education and Medical Legislation.
Publication.
Prize Essay.
[illegible]crology.
[illegible]gements.

[illegible] Each committee shall consist of not to exceed five [illegible]. Both the Chairman and the members of each

committee shall be appointed annually by the President elect for the ensuing year. Each committee shall present, at the next succeeding annual meeting, through its Chairman, a resumé of discoveries and progress during the previous year in its particular field, including a review of the Literature pertaining to the same. Supplementary reports from the individual members of each committee will be expected, and should deal with subjects germane to the general field of the committee's work.

SEC. 3. No paper will be received which is in an incomplete condition, nor if written upon both sides of the sheets. No paper will be published in the Transactions which has been previously published elsewhere, or which is not filed with the Secretary within two weeks after the close of the session to which it belongs.

ARTICLE V. PUBLICATIONS AND COMMUNICATIONS.

SECTION 1. Each standing committee shall constitute a Bureau of the particular subject committed thereto during the annual meeting and the year previous thereto; and to it shall be referred without motion all voluntary papers presented to the Society and germane to its work; as well as any other paper or communication which the Society shall so direct. Such papers shall be read by title only as soon as received, by the Society, and shall then be immediately referred without motion or debate. The committee to which reference was made shall decide upon its disposition, and may report it back to the Society, either by title alone, by abstract, or *in extenso*, or may refer it to the Committee on Publication, with such recommendation as it may see fit to make.

SEC. 2. All reports, papers, statistics, etc., presented to the Society shall become thenceforward its property, and shall be endorsed, indexed under two entries at least, and filed away in the archives of the Society, unless taken for publication by the Committee on Publication.

SEC. 3. The Committee on Publication shall have full control over all matter published in the annual volume of Transactions, to clip, extract from, and otherwise edit all matter reaching it as "Copy." Generally, however, the reports of standing committees should go in without alteration, as also should all separate papers which have passed the scrutiny of

their respective committees, and have been by them endorsed for publication. Other voluntary papers reaching it should, before publication, receive a close and critical scrutiny, and any obnoxious phraseology must be eliminated therefrom.

ARTICLE VI. ORDER OF BUSINESS.

SECTION 1. The Order of Business at each annual meeting of the Society shall conform to the following plan, subject at all times to temporary change or suspension at the pleasure of the Society, expressed by the vote of a majority of all the members in good standing present; and further subject to such changes for each daily session of the meeting as the Committee on Arrangements shall prescribe.

I. Organization of the meeting.
II. Report of the Committee on Arrangements as to credentials and addresses of members as registered.
III. Report of the Board of Censors.
IV. Calling the roll.
V. Reception of late arrivals, and reading excuses of absentees.
VI. Reception of honorary members.
VII. Reports from Standing Committees, and discussion of same.
VIII. Reception of voluntary communications, and reference of same.
IX. Election of officers, and place of next annual meeting.
X. Unfinished business.
XI. New business and instructions to Standing Committees.
XII. Reading of minutes of the meeting about to close.
XIII. Adjournment.

SEC. 2. *Roberts' Rules of Order* shall govern the deliberations of this Society in all matters of parliamentary usage not made the subject of specification in these By-laws.

ARTICLE VII. FUNDS.

SECTION 1. The funds of this Society shall be raised by voluntary individual contributions and legacies, by the sale of its publications, by an initiation fee of two dollars, and an annual one of five dollars from each member, which shall be due and payable in advance before adjournment of the annual

meeting. Payment of the annual dues shall entitle the paying member to receive one copy of each publication emanating from the Society during that year.

SEC. 2. The funds shall be expended for the various purposes hereinafter specified, namely, for defraying expenses of the annual meetings, publishing the transactions, etc., of the Society, reasonable expenses of the standing committees in furtherance of their respective duties, conducting their correspondence, and procuring material for their respective annual reports, for prizes and rewards of merit for encouraging scientific investigations and promoting higher medical education, for the establishment of a home for this Society, with laboratories, reading-rooms, etc., and for such other purposes as the Society may from time to time direct, in harmony with the objects of its constitution.

ARTICLE VIII. DISCIPLINE.

SECTION 1. Members may be disciplined for infraction of the Code of Ethics, or for violation of any special order or resolution of the Society, or its by-laws; and the discipline inflicted may be either—(*a*) reprimand,—(*b*) suspension from the rights and privileges of membership for any definite period,—and (*c*) expulsion from the Society.

SEC. 2. All charges against a member shall be presented in writing over the signature of the accuser, with detailed specifications as to time and place, and the names and residence of his witnesses, to the Chairman of the Board of Censors, who shall submit the same to the Board at its next meeting.

SEC. 3. The Board of Censors shall consider the charges and specifications, also the reliability of accuser and witnesses, and shall then, by vote, decide either to "not entertain" or to "entertain" said charges. In the former case the charges shall be returned to their author, with the action of the Board endorsed thereupon.

SEC. 4. If the Board decides to entertain the charges, it shall notify the accused, furnish him with a copy of the charges and specifications, and names of witnesses, and at the same time notify him of the time and place when and where the case will be heard. The accuser must also be notified of the same and instructed to have his witnesses present at the place and time specified. After a full hearing of both sides the Board shall vote upon (1st) the guilt or innocence of the accused, and

(2nd) his punishment, if found guilty. The action of the Board shall be kept in strict secrecy until it has been presented to the Society, which shall be done in the form of a special report, at any regular meeting, or at a special meeting called for that purpose.

SEC. 5. The Society shall thereupon summon the accused to answer in person, at a specified time and place, the presentment of the Board of Censors, and then the accused shall be heard in his own defense, before final action be taken; after which, the room being cleared of all non-members, the Society shall vote by ballot upon (1st) the guilt or innocence of the accused, and (2nd) his punishment, if found guilty; and the votes being counted, the President shall announce the result. A three-fourth's vote of all the members in good standing present, shall be necessary for any conviction of guilt or infliction of punishment.

ARTICLE IX. DELEGATES TO THE NATIONAL SOCIETY.

SECTION 1. This Society shall annually elect one delegate for every ten or fraction of ten of its members on the active and permanent lists, to represent it in the American Medical Association. Each delegate shall receive from the Secretary a certificate of his election as such delegate, which shall be signed by the President or Presiding Officer at said election, and duly authenticated by the signature of the Secretary and the seal of the Society.

ARTICLE X. AMENDMENTS, ETC.

SECTION 1. No alteration or amendment shall be made in any part of these By-laws except at a regular meeting and by a two-thirds (⅔) vote of all the members in good standing present; provided, that said alteration or amendment shall have been offered in writing and seconded at a previous session of the same meeting at least one day before, during which time public notice thereof, with the hour of its consideration shall have been posted in the hall of meeting and announced by the presiding officer from the chair.

OFFICERS

OF THE

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

1888-9

President

James Simpson

Vice-Presidents

Walter Lindley, W. J. G. Dawson, W. A. Briggs, & J. E.S. Baker

Permanent Secretary

W. W. Kerr

Assistant Secretaries

Harry M. Sherman, Lucy M. F. Wanzer

Treasurer

G. C. Simmons

Board of Censors

G. J. Fitzgibbon, C. C. Valle, S. F. Long
H. W. Dodge and E. W. King

Board of Examiners

C. E. Blake, R. H. Plummer, C. H. Steele, A. H. Pratt
C. E. Farnum, Jules A. Simon and W. S. Whitwell

Alternates

Geo. W. Davis, Winslow Anderson and John M. Williamson

SPECIAL AND STANDING COMMITTEES

OF THE

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

FOR 1888

The first named on each Committee being Chairman thereof.

Practical Medicine and Medical Literature.—J. H. Stallard, San Francisco; G. J. Fitzgibbon, San Francisco; W. F. McNutt, San Francisco; C. Max. Richter, San Francisco; J. G. Bailey, Santa Ana.

On Surgery.—C. G. Kenyon, San Francisco; R. A. McLean, San Francisco; Julius Rosenstirn, San Francisco; John F. Morse, San Francisco: Joseph Kurtz, Los Angeles.

On Obstetrics.—Wallace A. Briggs, Sacramento; Lucy M. F. Wanzer, San Francisco; C. C. Valle, San Diego; Geo. W. Westlake, Red Bluff; H. H. Hart, San Francisco.

Medical Topography, Meteorology, Endemics and Epidemics.—Jos. P. Widney, Los Angeles; Henry D. Robertson, Yreka; Oscar Stanzburg, Chico; Wm. M. Lawlor, San Francisco; E. S. O'Brien, Merced.

Indigenous Botany and Domestic Adulteration of Drugs.—W. P. Gibbons, Alameda; A. L. Lengfeld, San Francisco; Agnes Lowry, San Francisco; Robert C. Meyers, San Francisco; Frank K. Saxe, San Jose.

Public Hygiene and State Medicine.—M. M. Chipman, San Francisco; W. D. McCarthy, San Francisco; Washington Ayer, San Francisco; W. R. Cluness, Sacramento; W. B. Lewitt, San Francisco.

Histology and Microscopy.—Albert Abrams, San Francisco; J. H. Wythe, Oakland; D. W. Montgomery, San Francisco; S. S. Kahn, San Francisco; G. W. Lasher, Los Angeles.

Mental Diseases and Medical Jurisprudence.—W. H. Mays, Stockton; J. W. Robertson, Napa; W. S. Whitwell, San Francisco; H. G. Brainard, Los Angeles; Joseph O. Hirschfelder, San Francisco.

Medical Education.—Geo. Chismore, San Francisco; Asa Clark, Stockton; J. E. S. Baker, Angels' Camp; J. A. Miller, San Francisco; Elizabeth R. S. Sargent, San Francisco.

Publication.—G. F. G. Morgan, San Francisco; H. M. Sherman, San Francisco; W. W. Kerr, San Francisco; C. G. Kenyon, San Francisco; C. C. Wadsworth, San Francisco.

Arrangements.—H. H. Hart, San Francisco; G. J. Fitzgibbon, San Francisco; C. E. Farnum, San Francisco; C. C. Wadsworth, San Francisco; W. W. Kerr.

Prize Essay.—M. Regensberger, San Francisco; P. H. Flood, San Francisco; H. W. Dodge, San Francisco; R. W. Murphy, San Francisco; C. M. Enright, San Francisco.

Gynecology.—B. McMonagle, San Francisco; Jules A. Simon, San Francisco; Edna R. Field, San Francisco; J. A. Anderson, San Francisco; A. H. Pratt, Oakland.

Medical and Surgical Diseases of Children.—Walter Lindley, Los Angeles; T. J. Le Tourneux, San Francisco; B. R. Swan, San Francisco; Isabel Lowry, San Francisco; Harry M. Sherman, San Francisco.

Ophthalmology, Otology, Laryngology, and Rhinoscopy.—Henry Ferrer, San Francisco; A. P. Whittell, San Francisco; William E. Briggs, Sacramento; J. D. Arnold, San Francisco; Geo. H. Powers, San Francisco.

ACTIVE MEMBERS.

Abrams, Albert	112 Mason St.,	San Francisco
Adam, George	1236 Union St.,	"
Adams, Henry F	Colton,	California
Adams, John S	12th & Broadway,	Oakland
Agard, Aurelius H	12th & Broadway,	"
Agard, Lawrence M	Auburn,	California
Ainsworth, Frank K	Riverside,	"
Akerly, James C. S	S. S. Australia,	San Francisco
Alexander, G. E	San Ramon,	California
Alford, F. A	Ferndale,	Humboldt Co., Cal.
Allen, Cyrus H	Centerville,	California
Anderson, A	Monterey,	"
Anderson, Charles	Santa Barbara,	"
Anderson, Jerome A	4 O. F. Building,	S. F.
Anderson, Winslow	829 Broadway St.,	"
Anderson, W. D	Vallejo,	California
Anthony, Albert G	Willow & 7th Sts.,	Oakland
Armistead, Howell V	Hill's Ferry,	California
Armstrong, Robert	Alpine, San Diego Co.,	"
Arnold, Jacob D	235 Post St.,	San Francisco
Ayer, Washington	410 Kearny street,	"
Bailey, J. G	Santa Ana,	California
Baker, J. E. S	Angel's Camp,	"
Baldwin, Amos E	San Mateo,	"
Baldwin, Robert O	Oakland,	"
Barber, D. C	Los Angeles,	"
Barkan, Adolph	14 Grant Ave.,	San Francisco
Bates, Charles B	Santa Barbara,	California
Bates, Cicero M	Highland Springs,	"
Bates, Walter E	Davisville,	"
Baumeister, B. H	3238½ Mission St.,	S. F.
Bazan, F. Z	415 Sutter street,	"
Beasom, Abbie E	303 Turk street,	"
Belinge, F. A. A	1506 Pacific street,	"
Bellamy, B. C	Livermore,	California
Bettencourt, J. de S	209 Geary St.,	San Francisco
Bicknell, Fred. T	Los Angeles,	California
Blake, Charles E	200 Stockton St.,	San Francisco
Blake, James W	1844 Geary street,	"
Booth, Jas. P	Needles,	California
Borde, H. J	Cambria,	"
Boushey, Julius	1303 Mission St.,	San Francisco
Boyd, Samuel G	715 Clay street,	"

Boyce, John F.	Santa Rosa,	California
Brainerd, H. G.	Los Angeles,	"
Briggs, Wallace A.	Sacramento,	"
Briggs, William E.	Sacramemto,	"
Bromley, R. Innis	Dixon,	"
Brown, Charlotte B.	427 Geary St.,	San Francisco
Brown, Jacob N.	San Jose,	California
Brummett, S. B.	Lincoln,	"
Buckel, C. Annette	952 14th St.,	Oakland
Buckley, C. F.	715 Larkin St.,	San Francisco
Bucknall, Geo. J.	301 Sutter street,	"
Burchard, L. S.	12th & Broadway,	Oakland
Burgess, Oscar O.	329 Geary St.,	San Francisco
Cachot, M. A.	207 Taylor street,	"
Caldwell, Robert	San Jose,	California
Callandreau, J.	1307 Stockton St.,	S. F.
Carpenter, Lewis	Lakeport,	California
Chase, Albert	652 Market street,	S. F.
Chesley, Charles P.	754 Howard street,	"
Chipman, Marshall M.	404 Turk street,	"
Chismore, George	920 Market street,	"
Clark, Asa	Stockton,	California
Clark, Jonas	Woodland,	"
Clark, William D.	Cottonwood,	"
Clinton, Charles A.	30 Phelan Building,	S. F.
Cluness, W. R.	Sacramento,	California
Coffman, N. B.	Healdsburg,	"
Colby, Frank A.	Lancaster,	New Hampshire
Cole, R. Beverly	218 Post street,	S. F.
Collins, Addison C.	Davisville,	California
Connolly, Thos. E.	91 9th street,	San Francisco
Cook, Wm. Harris	Bakersfield,	California
Cowan, Charles S.	Fort Jonas,	"
Craig, Thornton	Capay,	"
Crepin, E. A.	Hollister,	"
Crossman, Lyman C.	Brown's Valley,	"
Crowder, Henry C.	Williams,	"
Crowley, Dennis D.	1103½ Broadway St.,	Oakland
Crumpton, H. John	Saucelito,	California
Curless, William	Truckee,	"
Cushing, Clinton	636 Sutter St.,	San Francisco
Darling, A. F.	Los Angeles,	California
Davis, Charles A.	433 Geary St.,	San Francisco
Davis, Geo. W.	433 Geary St.,	San Francisco
Davis, T. A	San Diego,	California
Dawson, W. J. G.	St. Helena,	"
Delmont, Francis	813 Jackson street,	S. F.
Dennis, Samuel W.	Flood's Bldg, Market St.,	S. F.
De Puy Anson A.	Linkville,	Oregon
De Vecchi, Paolo	700 Broadway St.,	S. F.
De Witt, T. Byron	Cor. Butte & Ken. Sts.,	"

Area Members

Gregory, Calvin L.....Yreka, California
Grover, William A.....Berkeley, "
Gydison, May C. E.....Salinas, "
Hagan, Martin.....Los Angeles, "
Hall, J. U.....San Jose, "
Hamlin, N. S.....Marysville, "
Hammond, William H.....San Jose, "
Harris, E. B.....2336 Mission St., S. F.
Hart, A. J.....Modesto, California
Hart, Henry H.....939 Howard, S. F.
Hartley, John D.....121 Powell street, "
Harvey, Obed.....Galt, California
Hatch, Fred W.....Napa, "
Haynes, Francis, L.....Los Angeles, "
Healy, John H.....850 Market street, S. F.
Hertel, C. A. E.....Gonzales, California
Hirschfelder, Jos. O.....429 Geary street, S. F.
Hodgdon, W. H. A.....327 Geary street, "
Hogshead, D. A.....Klinknerville, California
Holland, L. T.....Visalia, "
Hopkins, St. George L.....Fresno, "
Howard, Kate I.....1228 Market street, S. F.
Howard, S. D.....Elk Grove, California
Hunt, R. M.....Nevada City, "
Huntington, Thomas W.....C. P. R. R. Hospital, Sacrame'o
Jackson, Geo H.....Woodland, California
Jenkins, T. J.....Oroville, "
Jewell, James G.....2000 Stockton street, S. F.
Johnson, Charles M.....San Diego, California
Johnson, J. H.....New York
Johnson, J. Thad.....Atlanta, Georgia
Johnston, William D.....State Mining Bureau Pioneer B'ld'g S. F.
Jones, Caleb V.....Mountain View, California
Jones, William C.....Grass Valley, "
Jones, William F.....San Rafael, "
Joy, Blanche.....912 Sutter Street, S. F.
Kahn, Samuel S.....14 Grant Ave., "
Kane, Francis B.....46 O'Farrell street, "
Kearney, Peter A.....209 Kearny street, "
Keeney, James W.....14 Grant avenue, "
Kenyon, Curtis G.....664 Mission street, "
Kerr, Wm. Watt.....522 Sutter street, "
King, E. W.....Ukiah, California
Kirkpatrick, C. A.....920 Market street, S. F.
Knight, Benjamin.....Santa Cruz, California
Knowles, Samuel E.....118 Grant avenue, S. F.
Knox, S. B. P.....Santa Barbara, California
Kunkler, John E.....514 Kearny street, S. F.
Kurtz, Jos.....Los Angeles, California
La Brie, Godefroi.....1035 Mission street, S. F.
Laine, J. R.....Sacramento, California

Lane, Levi C.	652 Mission street,	S. F.
Larkin, John	West Berkeley,	California
Lasher, Geo. W.	Los Angeles,	"
Lawlor, William M.	326 Geary street,	S. F.
Lee, George P.	Merced,	California
LeFevre, J. P.	San Diego,	"
Legler, Henry T.	12th & Broadway Sts.,	Oakland
Lengfeld, A. L.	200 Stockton street,	S. F.
Leonard, Jennie Tower	Merced,	California
LeTourneux, T. J.	22 Geary street,	S. F.
Lewitt, William B.	605 Laguna street,	"
Lindley, Walter	237 S. Spring St.,	Los Angeles
Lindley, Will. E.	Albion,	Idaho
Long, Seeley F.	14 Grant avenue,	S. F.
Lonigo, Emil V.	1425½ Dupont street,	"
Lovelace, Arthur S.	200 Stockton street,	"
Lovelace, L. M.	Lemore,	California
Lowry, Agnes	607 Sutter street,	S. F.
Lowry, Isabel	607 Sutter street,	"
Lucas, William T.	Santa Maria,	California
Luce, Douglass	Banta,	"
Lusson, Pedro M.	San Jose,	"
Lynch, Wm. F.	Walnut Creek,	"
Mack, W. E.	Paradise,	California
Macfarlane, W. W.	Agnew,	California
Maynard, H. H.	Los Angeles,	"
Magill, Mary J.	Sacramento,	"
Magill, Zachary T.	Nicolaus,	"
Markell, Richard S.	Cloverdale,	"
Martinache, N. J.	5½ Kearny street,	S. F.
Mayon, James L.	Sutter Creek,	California
Mays, W. H.	Stockton,	"
McAllister, W. F.	502 Washington St.,	S. F.
McCarthy, W. D.	874 Mission street,	"
McCurdy, Samuel	Azusa,	California
McDonald, Jonathan T.	308 Fifth street,	S. F.
McDougall, W. D.	San Jose,	California
McLaughlin, M. A.	R. R. & 12th Ave.,	S. S. F.
McLean, J. T.	Alameda,	California
McLean, Robert A.	603 Merchant street,	S. F.
McMonagle, Beverly	703 Market street,	"
McNutt, William F.	405 Montgomery St.,	"
McSwegan, Daniel	San Diego	California
Meade, E. S.	San Jose,	"
Melton, Lewis	Wheatland,	"
Merrill, E. Roscoe	Sacramento,	"
Merritt, Emma L.	San Francisco	
Merritt, Geo. W.	San Francisco	
Meyers, Robert C.	Union & Powell Sts.,	S. F.
Miller, Charles F.	Hill's Ferry,	California
[illegible] John A.	1018 Valencia street,	S. F.

Miller, John H.	Redding,	California
Montgomery, Douglass W.	600 Sutter street,	S. F.
Montgomery, John	428 Sutter street,	"
Moody, Mary W.	944 Valencia street,	"
Morgan, G. F. G.	Union & Laguna Sts.,	"
Morse, John F.	200 Stockton street,	"
Mott, Henry V.	Brentwood,	California
Murphy, W. W.	Los Angeles,	California
Murphy, James	659 Clay street,	S. F.
Murphy, Robert W.	1601 Gough street,	"
Neal, Harrison	San Miguel,	California
Newmark, Valentine	Benicia,	"
Nichols, George B.	San Luis Obispo,	"
Nixon, Alexander B.	Sacramento,	"
Northrup, Daniel B.	San Diego,	"
Norton, Thomas	San Luis Obispo,	"
Nutting, Charles W.	Etna Mills,	"
Oatman, Ira E.	Sacramento,	"
O'Brien, Edward S.	Merced,	"
Ollino, G.	700 Broadway street,	S. F.
Orme, Henry S	120 N. Main St.,	Los Angeles
O'Toole, M. C.	6 Eddy street,	S. F.
Otto, Guy W.	San Francisco	
Overend, Edmund J	856 Jefferson street,	Oakland
Pardee, E. H	Oakland,	California
Pardee, George C.	526 Montgomery St.,	S. F.
Parkinson, James H.	429½J street,	Sacramento
Parson, Edward	103 Montgomery St.,	S. F.
Partsch, Herman	S. S. Granada,	S. F.
Paton, Charles J	St. Luke's Hospital,	S. F.
Patten, Mark F	San Buenaventura,	California
Patty, Levi H.	Petaluma,	"
Patterson, E. M	Oakland,	California
Pawlicki, L. B. S.	700 Sutter street,	S. F.
Payne, Frank H.	East Berkeley,	California
Pedlar, Alfred J.	Fresno,	"
Pearson, J. E.	Walnut Creek,	"
Pfeninger, John	Anaheim,	"
Phillips, Thomas	Stockton,	"
Pinkerton, Thomas H	1155 Broadway street,	Oakland
Plummer, R. H.	652 Mission street,	S. F.
Pond, Henry M.	St. Helena,	California
Pond, M. B.	Napa,	California
Posey, A. C.	37 Post street,	S. F.
Potter, Sam'l O. L.	Sutter & Hyde street,	S. F.
Powell, David	Marysville,	California
Powers, George H.	215 Geary street,	S. F.
Pratt, Albert H	12th & B'dway streets,	Oakland
Pratt, William F	Agnew,	California
Pritchard, Maurice	Sierra Valley,	California
Rabe, B. A.	Oakland,	"

Lane, Levi C.
Larkin, John
Lasher, Geo.
Lawlor, William
Lee, George F.
LeFevre, J. P.
Legler, Henry T.
Lengfeld, A. L.
Leonard, Jennie
LeTourneux, T.
Lewitt, William
Lindley, Walter
Lindley, Will. E.
Long, Seeley F.
Lonigo, Emil V.
Lovelace, Arthur
Lovelace, L. M.
Lowry, Agnes
Lowry, Isabel
Lucas, William T.
Luce, Douglass
Lusson, Pedro M.
Lynch, Wm. F.
Mack, W. E.
Macfarlane, W. W.
Maynard, H. H.
Magill, Mary J.
Magill, Zachary T.
Markell, Richard S.
Martinache, N. J.
Mayon, James L.
Mays, W. H.
McAllister, W. F.
McCarthy, W. D.
McCurdy, Samuel
McDonald, Jonathan T.
McDougall, W. D.
McLaughlin, M. A.
McLean, J. T.
McLean, Robert A.
McMonagle, Beverly
McNutt, William F.
McSwegan, Daniel
Meade, E. S.
Melton, Lewis
Mer[illegible] Roscoe
Mer[illegible]
Mer[illegible]
M[illegible]
M[illegible]

Rattan, Frank	Encenitos,	California
Reading, John W	San Diego,	"
Regensberger, Martin	114 Geary street,	S. F.
Reid, Robert K	Stockton,	California
Renebome, John H	N. W. cor. Fillmore and Jackson	
Reynolds, George P	Alameda,	California
Reynolds, R. G	Upper Lake,	"
Richmond, G. B., Jr	Salinas,	"
Richter, C. Max	614 Geary street,	S. F.
Rivas, Isaac	1426 Mason street,	"
Robe, William E	Maxwell,	California
Robertson, E. B	Jackson,	"
Robertson, Henry D	Yreka,	"
Robertson, John W	Napa,	"
Robinson, Luke	217 Geary street,	S. F.
Rodgers, Lee O	920 Market street,	S. F.
Rogers, Albert C	Los Angeles,	California
Rogers, Charles A	Bakersfield,	California
Rogers, Nathan	703 Market street,	S. F.
Rooney, Robert F	Auburn;	California
Rosenstirn, Julius	Sutter & Hyde streets,	S. F.
Ross, Thomas	Woodland,	California
Rowell, Chester	Fresno,	"
Rucker, Hiram N	Merced,	"
Rugg, Sumner P	118½ Fulton street,	S. F.
Sargent, Elizabeth R. C	607 Sutter street,	"
Sargent, Jacob L	Woodbridge,	California
Sawyer, Herbert C	7 Hill street,	San Francisco
Saxe, A. W	Santa Clara,	California
Saxe, Frank K	San Jose,	"
Scholl, Albert L	19th & Mission Sts.,	S. F.
Seifert, George W	San Jose,	California
Senftleben, Hugo	San Luis Obispo,	"
Serviss, Thomas W	Oroville,	"
Sherman, Harry M	920 Market street,	S. F.
Shearer, M. M	Santa Rosa,	California
Shuey, Sarah I	Sierra Madre,	"
Shurtleff, Benjamin	Napa,	"
Shurtleff, George A	Napa,	"
Siefkes, John L	cor. Butte and Kentucky,	S. F.
Simmons, Gustavus C	Sacramento,	California
Simmons, G. L	Sacramento,	"
Simon, Jules A	323 Geary street,	S. F.
Simonton, W. B	Oakland,	California
Simpson, James	234 Post street,	S. F.
Slater, Thomas	Alameda,	California
Smith, E. R	Los Angeles,	"
Smith, Andrew C	Plymouth,	"
Smith, H. Watson	Placerville,	"
Smith, Robert P., Jr	Santa Rosa,	"
Smith, William G	Sturges,	D. T.

Snider, Thornton A.	Sacramento,	California
Sobey, Arthur L.	810 20th street,	San Francisco
Soper, Joseph H.	1001 Market street,	"
Southard, William F.	1155 Broadway street,	Oakland
Sponogle, Frank M.	Fresno,	California
Sponogle, J. Dorsey	Dunsmuir,	"
Stallard, J. H.	632 Sutter street,	S. F.
Stansbury, Oscar	Chico,	California
Steele, Charles H.	2322 Mission street,	S. F.
Stitt, James W.	Vacaville,	California
Stockton Thos. C.	San Diego,	"
Stone, J. S.	Healdsburg,	"
Stuart, Anabel McG.	Santa Rosa,	"
Sullivan, James F.	1105 Van Ness Ave.,	S. F.
Sundberg, John C.	405 Montgomery street,	"
Swan, Benjamin R.	310 Stockton street,	"
Sweetland William P.	397 Hayes street,	"
Swisher, J. R.	Healdsburg,	California
Szigethy, C. A. H. de	Los Angeles,	"
Taylor, Albert M.	San Leandro,	"
Taylor, William E.	215 Geary Street,	S. F.
Taylor, William S.	Livermore,	California
Thayer, Orson V.	218 Post street,	San Francisco
Thomas, George P.	San Leandro,	California
Thorne, Walter S.	San Jose,	"
Todd, J. R.	Gridley,	"
Todd, F. Walton	Stockton,	"
Todd, T. M.	Auburn,	"
Tremblay, F. X.	Willows,	"
Trembley, J. B.	952 Eighth street,	Oakland,
Tully, John J.	Sierra City,	California
Tyrrell, Gerrard G.	Sacramento,	"
Van Orden, Kate P.	14 Dupont street,	San Francisco
Valle, Chas. C.	San Diego,	California
Vallejo, Platon	Vallejo,	"
Vaux, E. P.	Santa Cruz,	"
Verrinder, Arthur E.	37 Post street,	S. F.
Verrinder, Robert F.	37 Post street,	"
Wadsworth, C. C.	606 Sutter street,	S. F.
Wagner, John	2025 Mission street,	"
Wallace, W. H.	Eureka,	California
Wanzer, Lucy M. F.	205 Taylor street,	S. F.
Watts, Nelson	Chico,	California
Wefelsburg, A. B. von	823 Mission street,	S. F.
Welch, Henry S.	Nevada City,	California
Welch, Joseph P.	Orland,	"
Wells, William H.	Dixon	"
West, J. M.	Red Bluff,	"
Westlake, George W.	Red Bluff,	"
Wharry, Chas. J.	Alameda,	California
Wheeler, Peter	1155 Broadway,	Oakland, "

White, Franklin J.....San Rafael, California
Whittell, A. P.....235 Post street, S. F.
Whitwell, William S.....907 Sutter street, "
Widney, Joseph P.....Widney Block, Los Angeles
Wilkins, E. T.....Napa City, California
Williams, Nathaniel.....Richland, "
Williamson, J. M.....664 Haight street, S. F.
Wills, W. Le Moyne.....Widney Block, Los Angeles
Winton, Henry N.....Haywards, California
Woods, W. E. Josephine.....1529 California street, S. F.
Woolsey, Elliott H.....12th & Broadway, Oakland
Worthington, Henry.....265 N. Main St., Los Angeles
Wythe, Joseph H.....965 West street, Oakland
Young, Bird S.....Santa Rosa, California
Young, Junius D.....Stockton, "
Younger, William J.....300 Stockton street, S. F.

416

HONORARY MEMBERS.

Ames, A.....Boston, Mass.
Baily, Elisha I.....Col. U. S. A., Phelan B'd, S. F. Cal.
Baily, Joseph C.....Lt. Col. U. S. A., Ft. Monroe, Va.
Bentley, Edwin.....Maj. U. S. A., Little Rock, Arkansas
Billings, John S.....Maj. U. S. A. Washington, D. C.
Blake, Charles M.....427 Geary street, San Francisco, Cal.
Blake, James.....London, England
Cameron, Charles A.....Dublin, Ireland
Carothers, J. H.....Martinez, California
Cochran, John J.....U. S. A. S. F. Cal.
Douglass, W. A.....San Francisco, California
Gerry, S. R.....San Francisco, "
Gihon, Albert L.....U. S. Naval Hospital, Mare Isl., Cal.
Hyrtel, Joseph .....Vienna, Austria
Kindleberger, David.....U. S. N, Hospital, Washington, D. C.
Lansdale, P.....U. S. N. 1014 Clinton St., Phil., Penn
LeConte John.....Berkeley, California
LeConte, Joseph.....Berkeley, "
Nickerson, W. M.....U. S. N., Baltimore, M. D.
Sternberg, G. M.....Maj. U. S. A., Washington, D. C.
Stout, Arthur B..... ....729 Montgomery street, S. F., Cal.
Sutherland, Charles.....U. S. A., Governor's Island, N. Y.
Taylor, Edward R.....San Francisco, California
Tibbitts, Steven M.....San Francisco, "
Virchow, Rudolph .....Berlin, Prussia

25